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Economical Design of Steel
Fink-Trussed Roofs
120-foot Span

Architectural Engineering

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ECONOMICAL DESIGN OF
STEEL FINK-TRUSSED ROOFS, 120-FOOT SPAN

BY
ROY CRAIG MITCHELL
AND
WILLIAM EDWARD BROWN

THESIS
For the Degree of Bachelor of Science
in Architectural Engineering

COLLEGE OF ENGINEERING
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THIS IS TO CERTIFY THAT THE THESIS PREPARED UNDER MY SUPERVISION BY

Roy Craig Mitchell

and

William Edward Brown

ENTITLED Economical Design of Steel Fink Trussed Roofs of 120 ft. Span

IS APPROVED BY ME AS FULFILLING THIS PART OF THE REQUIREMENTS FOR THE DEGREE

OF Bachelor of Science in Architectural Engineering

N. Clifford Micker,

HEAD OF DEPARTMENT OF Architecture



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The Economical Design of Steel Fink Trussed Roofs, 120-foot Span.

The object of this investigation is suggested by its title. The Economical Design of Fink-Trussed Roofs, and it is a continuation of the work began last year by Gustafson and Triebel, by Mueller and Hazen. They studied similar roofs with spans of 50 ft. and 80 ft. respectively, the span here considered being 120 ft. The term economy of design as employed in this investigation means the least weight of steel that can be properly and safely used to support the assumed wind and snow loads together with actual weight of the roof.

The span of 120 ft. was retained throughout this investigation. A rise of $12\frac{1}{2}$ ft. and a spacing of 10 ft. from center to center of trusses was first assumed. This spacing was increased by increments of $2\frac{1}{2}$ ft. till a spacing of 25 ft. was reached, the rise being then increased by $2\frac{1}{2}$ ft. to 15 ft., with a spacing



beginning as before at 10 ft. and increasing to 25 ft. The rise was again increased by $2\frac{1}{2}$ ft. and so on, till a rise of 30 ft. had been used for the different spacings. The total number of trusses worked out was fifty-six.

In designing these trusses, with one exception, no rolled bars smaller than $2\frac{1}{2} \times 2 \times \frac{5}{16}$ Ls were used, this single exception being the middle suspended rod, which is composed of 2-Ls- $2\frac{1}{2} \times 2 \times \frac{1}{4}$ in all trusses. The minimum thickness of metal in all cases is assumed at $\frac{5}{16}$ and all gusset and splice plates are made $\frac{1}{2}$; $\frac{3}{4}$ " rivets are used throughout. In computing the details, only three different trusses for each rise have been carefully and completely detailed viz:- for 10 ft, $17\frac{1}{2}$ ft. and 25 ft. between centers. The percentage of details thus established was averaged and the weights were thus computed.

The weight of truss was assumed in accordance with the formula established by Mr. C. G. Ricker. $W = \frac{\text{span}}{25} + \frac{\text{span}^2}{6000}$
By this formula the assumed weight of each truss was computed; with the

actual weight of the truss found by computation, the stresses for the dead and snow loads were revised, and the sections were again designed or revised.

The stresses were found by the methods of graphic statics; the maximum stresses comprising the entire dead load together with a snow load of 20 lbs. per square foot of horizontal projection of the roof, adding a wind load of 30 lbs. per square foot on its vertical projection, the latter acting on one side of the roof only.

The sections of the truss members were designed in accordance with the ^{following} maximum unit stresses; - Tension, 8 tons per square inch of net section; Compression, $8.00 - 42 \frac{L}{r}$ tons per square inch, where L = length of member in feet, r = least radius of gyration of cross-section in inches. To apply this formula readily and easily, a graphical table was drawn, a copy of which is added to this report. The rivets were computed on the basis of; - Shear, = 7500 lbs. per square inch. Bearing = 15000 lbs. per square inch. The sheathing,

rafters and purlins have been computed⁴ by formula, which were simplified and given in lectures by Dr. Ricker. The following formulae are derived from those found in Merriman and Jacoby's work, reduced to simpler form.

Let F = safe fiber stress in tons per sq. in.
= 8.00 tons for steel.

" E = modulus of elasticity in tons.
= 14 000 tons for steel.

" L = length of beam in feet.

Steel Purlins.

These were designed for both breaking ($\frac{F}{e}$) and for bending (I), the safest result being used in each case. These formulae are for end supported, the purlin being loaded uniformly for the entire length.

Breaking, $\frac{F}{e} = \frac{3WL}{16} =$ section modulus.

Bending $I = \frac{3WL^2}{56} =$ moment of inertia.

W = total load upon purlin, in tons.

The purlins may yield either normally or parallel to the roof surface; hence its resistance must be sufficient in each direction, or it must be supported at

intermediate points by suspension rods extending parallel to the roof plane and fixed to the ridge purlin.

Let V = total dead and snow load in tons,

" N = " wind load upon purlin in tons.

Then $W' = V \cos \alpha + N$ = total load acting normal to the roof surface and,

$W'' = V \sin \alpha$ = total load acting parallel to the surface, α being the angle of inclination. These formulae are applied to both cases of bending ($\frac{I}{e}$) and breaking ($\frac{I}{e}$) and the purlin was made safe in each direction.

It was found, however, that in all cases, such excess of section was required for the loads parallel to the roof surface over that necessary for the loads normal to the roof surface that it was best to support the purlin by suspension rods. These rods had upset ends in all cases. To determine the maximum distance required between supports considering the rods as supporting points, the following formulae were used for both bending and breaking as before, the safest result being used;—

For breaking $L = \sqrt{\frac{16I}{3W e}}$

" bending $L = \sqrt[3]{\frac{56I}{3W}}$

Rafters.

Stresses in the rafters are evidently of two kinds besides shear:-

1st. - Compression acts length wise, uniformly increasing from 0 at upper end to a maximum at the lower end.

2nd. The uniformly distributed transverse loading component acts normal to the roof surface and the length of the rafters.

There are two methods of determining the section of the rafter; -

a. The accurate method, considering both longitudinal and transverse loading.

b. The approximate method considering transverse loading only. By transverse loading in the latter method we mean the sum of the dead and snow loads acting normally to the roof surface. The latter method has been used in this investigation; it usually gives a section a little larger than the accurate method, but it is safe and much more convenient.

and rapid.

$W = V + N =$ transverse loading.

Bending $I = \frac{W L^3 C}{448000} =$ moment of inertia.

Breaking $\frac{I}{e} = \frac{W L^2 C}{128000} =$ section modulus.

The safest result determined choice of section in each case. The value c is the distance of the rafters center to center in inches.

The process of obtaining the results being the same for each truss, it is not necessary to give complete itemized data for more than one truss. The truss selected for this purpose is the first one of the series, viz:- 120 ft. span, $12\frac{1}{2}$ ft. rise, 10 ft. on centers. We shall however give the stresses and sections for all the trusses computed in the investigation.

Computation.

120'-0" span; 12'-6" rise; 10'-0' center to center;

$\alpha = 11^\circ 40'$; N.W.P. = 11.7# ; V.P. = 30# ; S.P. = 20#/lin.

Panel length = 15.31 ft.; Panel area = 153.1 sq. ft.

$\cos. \alpha = .979$ $\sin. \alpha = .202$

Roof covering

Sheathing L. L. Pine, $\frac{7}{8}"$, = 4.00# per sq. ft.

Slate = 10.00 " " "

Felt = .50 " " "

Snow = $20 \times .979$ = 19.58 " " "

Total load upon roof surface = 34.08 " " "

Total load perpendicular to roof surface =
 $34.08 + 11.7 = 45.78\#$ per sq. ft.

To find maximum distance center to center of rafters.

For breaking $L = \sqrt{\frac{5600L^2}{3W}} = \sqrt{\frac{5600 \times 875^2}{3 \times 45.78}} = 5.60$ ft.

" bending $L = \sqrt[3]{\frac{17000L^3}{3W}} = \sqrt[3]{\frac{17000 \times 875^3}{3 \times 45.78}} = 3.24$ ft.

Rafters; -

To be of steel with nailing pieces upon which to fasten the roof covering.

Rafters to be spaced 30" centers.

For breaking $\frac{I}{e} = \frac{WL^2C}{128000} =$

" bending $I = \frac{WL^3C}{448000}$

V = total dead and snow load in lbs. per sq. ft. of roof surface.

N = normal wind pressure in lbs. per sq. ft.

$$W = V + N = 34.08 + 11.7 = 45.78 \text{ lbs.}$$

c = distance in inches c. to c. of rafters.

L = length in feet of rafters.

$$\text{Hence; } - \left. \begin{aligned} \frac{I}{c} &= \frac{45.78 \times 15.51^2 \times 30}{128000} = 2.52 \\ I &= \frac{45.78 \times 15.51^3 \times 30}{448000} = 11.01 \end{aligned} \right\} \therefore \text{Use } 1-5"-6\frac{1}{2}" \text{ I}$$

Purlins:- Uniformly loaded.

Load upon purlin:-

$$V = \text{total dead + snow load in tons} = \frac{34.08 \times 153.1}{2000} = 2.61$$

$$N = \text{" wind load in tons} = \frac{11.7 \times 153.1}{2000} = .89$$

$$W' = V \cos \theta + N = \text{total load normal to roof} = 3.63 \text{ Ts.}$$

$$W'' = V \sin \theta = \text{" " parallel to roof} = .53 \text{ Ts}$$

For load normal to roof:-

$$\left. \begin{aligned} \text{For breaking } \frac{I}{c} &= \frac{3WL}{16} = \frac{3 \times 3.63 \times 10}{16} = 6.64 \\ \text{" bending } I &= \frac{3WL^2}{56} = \frac{3 \times 3.63 \times 10^2}{56} = 18.92 \end{aligned} \right\} \text{Use } 1-6"-12\frac{1}{2}" \text{ I}$$

For load parallel to roof:-

$$\left. \begin{aligned} \text{For breaking } \frac{I}{c} &= \frac{3WL}{16} = \frac{3 \times .53 \times 10}{16} = .99 \\ \text{" bending } I &= \frac{3WL^2}{56} = \frac{3 \times .53 \times 10^2}{56} = 2.83 \end{aligned} \right\} \text{Use } 1-7"-17\frac{1}{2}" \text{ I}$$

Use a 6"-12 $\frac{1}{2}$ " I with rods to take up the stress parallel to the roof surface.

To determine the distance between supports, considering the rods as a support:-

$$\text{For breaking. } L = \frac{16I}{3W} = \frac{16 \times 1.85}{3 \times .53 \times 1.66} = 11.3 \text{ ft.}$$

$$\text{" bending } L = \sqrt{\frac{56I}{3W}} = \sqrt{\frac{56 \times 1.85}{3 \times .53}} = 8.5 \text{ ft.}$$

Hence we may safely use one rod in the middle of the span, it being but 10 ft.

Stress in rod = .53 Tons Rod = $\frac{1}{2}$ " diam upset.

" " " = 1.056 " " = $\frac{1}{2}$ " " "

" " " = 2.112 " " = $\frac{9}{16}$ " " "

" " " = 4.224 " " = $\frac{7}{8}$ " " "

Apex Purlin.

Dead + Snow-load = 1.30 tons.

N. Wind " = .44 "

Vertical wind " = .43 "

" " " upon purlin = .211 Tons

Total vertical load upon purlin = 1.30 + .43 = 1.73 Tons.

For breaking, $\frac{I}{c} = \frac{3WL}{16} = \frac{3 \times 1.73 \times 10}{16} = 3.24$

" bending $I = \frac{3WL^2}{56} = \frac{3 \times 1.73 \times 10^2}{56} = 9.28$

It is now necessary to consider the stress due to the supporting rods; consider only the vertical components of the stress, considering that the horizontal forces or components, counterbalance each other.

$$V = 4.234 \times .202 (\sin \theta) = .845 \text{ Tons.}$$

This load is concentrated at the center of the beam and hence these formulae are to be used:-

For breaking $\frac{I}{c} = \frac{3WL}{8} = \frac{3 \times .845 \times 10}{8} = 3.18$

" bending $I = \frac{3WL^2}{35} = \frac{3 \times .845 \times 10^2}{35} = 7.24$

The total value of I for required for the apex purlin are:-

$$I = 7.24 + 9.28 = 16.52$$

$$\frac{I}{S} = 3.18 + 3.24 = 6.42$$

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Therefore use 1-6"-12 $\frac{1}{4}$ " I.

Joint Loads.

Dead loads:-

Roof surface	= 153.1 X 14.5 =	2220.00
Purlin	= 6"-12 $\frac{1}{4}$ " X 10 =	120.25
4 rafters	= 5'-6 $\frac{1}{2}$ " X 15.31 =	397.00
Trailing p's	=	51.00
Rods.	=	20.00
Truss	=	<u>1080.00</u>

$$\text{Total dead load} = 3888.25 = 1.9475$$

$$\text{Snow load} = 153.1 \times 19.6 = 3000.00 = 1.50$$

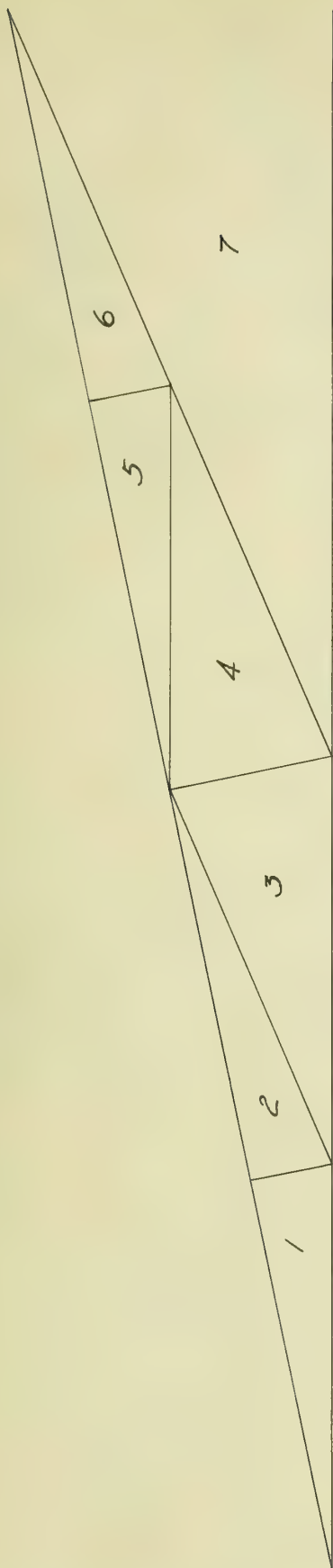
$$\text{Wind} = 153.1 \times 11.7 = 1780.00 = .895$$

$$\text{Total dead + Snow loads} = 4.335$$

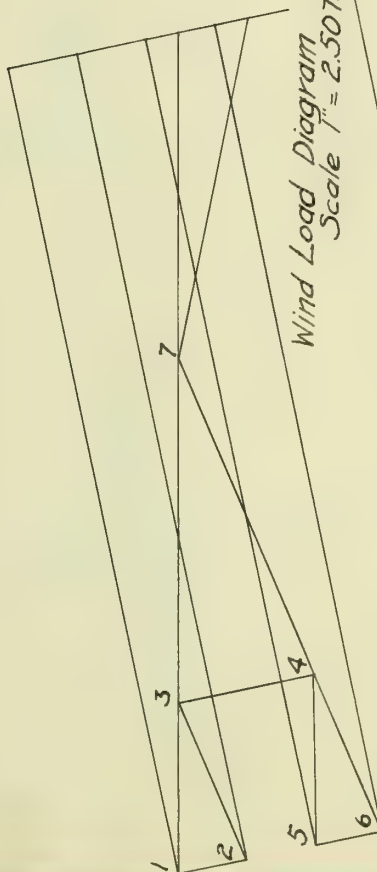
Load upon one half truss:-

$$\text{Dead + Snow} = 4.335 \times 4 = 17.34 \text{ Tons}$$

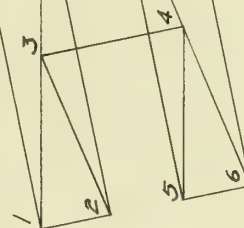
$$\text{Wind} = .895 \times 4 = 3.58 \text{ Tons.}$$



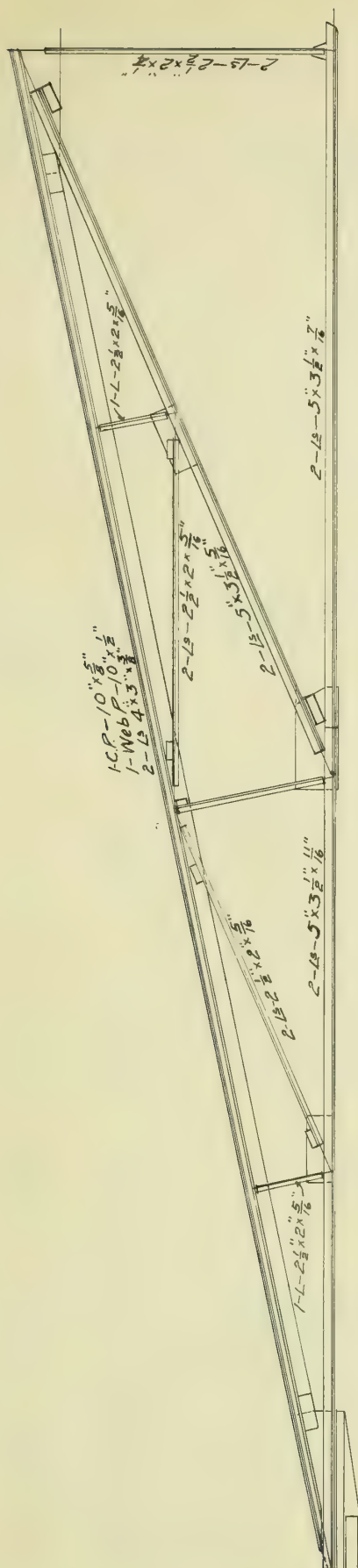
120'-0" Span
12'-6" Rise. 10'-0" Spacing



Wind Load Diagram
Scale 1" = 2.50 Ts



Dead + Snow Load Diagram
Scale 1" = 10.00 Ts



120'-0" SPAN
12'-6" RISE 10'-0" Centers

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 10'-0"

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	10.80	60.35	71.15	15.32	1-Pl-10"x $\frac{1}{2}$ " 1-Pl-10"x $\frac{5}{8}$ " 2Ls 4"x3"x $\frac{3}{8}$ "	280.0 328.0 280.0			
C-2	10.80	59.65	70.45	15.32	"Do"	280.0			
					"	328.0			
					"	280.0			
D-5	10.80	59.00	69.80	15.32	"Do"	280.0			
					"	328.0			
					"	280.0			
E-6	10.80	58.35	69.15	15.32	"Do"	280.0			
					"	328.0			
					"	280.0	No Change		
X-1	11.27	59.05	70.32	15.65	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{11}{16}$ "	575.0			
X-3	9.00	50.90	59.90	15.65	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{11}{16}$ "	575.0			
X-7	4.46	33.70	38.16	28.70	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{7}{16}$ "	689.0			
1-2	0.90	3.47	4.37	3.19	1-L-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	12.0			
2-3	2.26	8.60	10.86	15.65	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	116.0			
3-4	1.80	6.95	8.75	6.38	2-Ls-3"x2 $\frac{1}{2}$ "x $\frac{1}{4}$ "	57.0			
4-5	2.26	8.60	10.86	15.65	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	116.0			
5-6	0.90	3.47	4.37	3.19	1-L-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	12.0			
6-7	4.53	16.85	21.38	15.65	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{5}{16}$ "	273.0			
4-7	6.80	25.50	32.30	15.65	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{5}{16}$ "	273.0			
Tie 7-7'				12.50	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	46.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
4320	458.0	7.5	13.9			6468.0	10.8		

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 12'-6"

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	13.50	70.20	83.70	15.32	1-Pl-10"x $\frac{1}{2}$ "	260.0			
					1-Pl-12"x $\frac{1}{2}$ "	319.0			
					2-Ls-4"x3"x $\frac{1}{2}$ "	340.0			
C-2	13.50	69.40	82.90	15.32	'Do"	260.0			
					"	319.0			
					"	340.0			
D-5	13.50	68.60	82.10	15.32	'Do"	260.0			
					"	319.0			
					"	340.0			
E-6	13.50	67.80	81.30	15.32	'Do"	260.0			
					"	319.0			
					"	340.0			
X-1	14.02	68.70	82.72	15.65	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{13}{16}$ "	663.0	No Change		
X-3	11.20	58.20	69.40	15.65	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{13}{16}$ "	663.0			
X-7	5.55	39.20	44.75	28.70	2-Ls-4"x3"x $\frac{9}{16}$ "	712.0			
1-2	1.12	4.04	5.16	3.19	1-L-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	14.0			
2-3	2.82	10.00	12.82	15.65	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	141.0			
3-4	2.24	8.16	10.40	6.38	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	57.0			
4-5	2.82	10.00	12.82	15.65	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	141.0			
5-6	1.12	4.04	5.16	3.19	1-L-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	14.0			
6-7	5.65	19.60	25.25	15.65	2-Ls-4"x3"x $\frac{7}{16}$ "	307.0			
4-7	8.46	29.68	38.14	15.65	2-Ls-4"x3"x $\frac{7}{16}$ "	307.0			
Tie 7-7'				12.50	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	46.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
5400	491.0	7.33	9.63			7040.0	9.4		

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 15'-0"

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	16.15	77.95	94.10	15.32	1-Pl.-10"x $\frac{1}{2}$ "	2600			
					1-Pl.-12"x $\frac{5}{8}$ "	391.0			
					2-Ls-4"x3"x $\frac{1}{2}$ "	340.0			
C-2	16.15	77.00	93.15	15.32	"Do"	2600			
					"	391.0			
					"	340.0			
D-5	16.15	76.15	92.30	15.32	"Do"	2600			
					"	391.0			
					"	340.0			
E-6	16.15	75.27	91.40	15.32	"Do"	2600			
					"	391.0			
					"	340.0	No Change		
X-1	16.78	76.30	93.08	16.65	2-Ls-6"x6"x $\frac{5}{8}$ "	757.0			
X-3	13.40	65.70	79.10	16.65	2-Ls-6"x6"x $\frac{5}{8}$ "	757.0			
X-7	5.57	43.50	49.07	28.70	2-Ls-6"x4"x $\frac{3}{8}$ "	706.0			
1-2	1.34	4.48	5.82	3.19	1-L-2"x2"x $\frac{5}{16}$ "	14.0			
2-3	3.38	11.10	14.48	15.65	2-Ls-2"x2"x $\frac{5}{16}$ "	141.0			
3-4	2.68	8.96	11.64	6.38	2-Ls-2"x2"x $\frac{3}{8}$ "	68.0			
4-5	3.38	11.10	14.48	15.65	2-Ls-2"x2"x $\frac{5}{16}$ "	141.0			
5-6	1.34	4.48	5.82	3.19	1-L-2"x2"x $\frac{5}{16}$ "	14.0			
6-7	6.75	21.72	28.47	15.65	2-Ls-4"x3"x $\frac{1}{2}$ "	348.0			
4-7	10.13	32.90	43.03	15.65	2-Ls-4"x3"x $\frac{1}{2}$ "	348.0			
Tie 7-7'				12.50	2-Ls-2"x2"x $\frac{1}{4}$ "	46.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
6480	522.0	7.17	6.37			7598.0	85		

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 17'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	18.93	9980	118.73	15.32	1-Pl.-10"x $\frac{1}{2}$ "	260.0			
					1-Pl.-12"x $\frac{13}{16}$ "	508.0			
					2-Ls.-4x3x $\frac{5}{8}$ "	417.0			
C-2	18.93	9810	117.03	15.32	"D ₀ "	260.0			
					"	508.0			
					"	417.0			
D-5	18.93	9755	116.48	15.32	"D ₀ "	260.0			
					"	508.0			
					"	417.0			
E-6	18.93	9640	115.33	15.32	"D ₀ "	260.0			
					"	508.0			
					"	417.0	No Change		
X-1	19.67	97.70	117.37	16.65	2-Ls.-6"x6"x $\frac{13}{16}$ "	970.0			
X-3	15.70	84.20	99.90	16.65	2-Ls.-6"x6"x $\frac{13}{16}$ "	970.0			
X-7	7.78	56.75	64.53	28.70	2-Ls.-6"x6"x $\frac{7}{16}$ "	987.0			
1-2	1.57	5.75	7.32	3.19	2-Ls.-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	240			
2-3	3.96	14.21	18.17	15.65	2-Ls.-3"x2 $\frac{1}{2}$ "x $\frac{3}{8}$ "	207.0			
3-4	3.14	11.50	14.64	6.38	2-Ls.-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	86.0			
4-5	3.96	14.21	18.17	15.65	2-Ls.-3"x2 $\frac{1}{2}$ "x $\frac{3}{8}$ "	207.0			
5-6	1.57	5.75	7.32	3.19	2-Ls.-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	240			
6-7	6.90	27.85	34.75	15.65	2-Ls.-5"x3"x $\frac{5}{8}$ "	492.0			
4-7	11.88	42.20	54.18	15.65	2-Ls.-5"x3"x $\frac{5}{8}$ "	492.0			
Tie 7-7'				12.50	2-Ls.-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	46.0			

Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.
7560	6630	7.0	7.85			95390	9.07

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 20'-0"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	2143	113.70	13513	15.32	1-P1-14x $\frac{1}{2}$	3650			
					1-P1-14x $\frac{1}{2}$	3650			
					2-L $\frac{1}{2}$ -6x3 $\frac{1}{2}$ x $\frac{1}{2}$	4690			
C-2	2143	112.45	13388	15.32	'D $\frac{1}{2}$ '	3650			
					"	3650			
					"	4690			
D-5	2143	111.10	13253	15.32	'D $\frac{1}{2}$ '	3650			
					"	3650			
					"	4690			
E-6	2143	109.90	13133	15.32	'D $\frac{1}{2}$ '	3650			
					"	3650			
					"	4690	No Change		
X-1	2230	11130	13360	15.65	2-L $\frac{1}{2}$ -6x6x $\frac{1}{16}$	11050			
X-3	1780	96.00	11380	15.65	2-L $\frac{1}{2}$ -6x6x $\frac{1}{16}$	11050			
X-7	884	63.50	7234	28.70	2-L $\frac{1}{2}$ -6x6x $\frac{7}{16}$	9980			
1-2	178	7.20	898	319	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$	240			
2-3	485	16.20	2105	1565	2-L $\frac{1}{2}$ -3x2 $\frac{1}{2}$ x $\frac{7}{16}$	2380			
3-4	356	13.09	1665	638	2-L $\frac{1}{2}$ -3x2 $\frac{1}{2}$ x $\frac{1}{2}$	86.0			
4-5	485	16.20	2105	1565	2-L $\frac{1}{2}$ -3x2 $\frac{1}{2}$ x $\frac{7}{16}$	2380			
5-6	178	7.20	898	319	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$	240			
6-7	898	31.75	4073	1565	2-L $\frac{1}{2}$ -4x3x $\frac{3}{4}$	501.0			
4-7	1345	48.05	5150	1565	2-L $\frac{1}{2}$ -4x3x $\frac{3}{4}$	501.0			
Tie 7-7'				12.50	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$	46.0			
Assumed Weight of Truss	7260	7.55	4.90	Per Cent. Increase D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
8640						9981.0	8.32		

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 22'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	24.36	12840	152.76	15.32	1-P1-14x $\frac{1}{2}$ "	365.0			
					1-P1-14x1"	730.0			
					2-L $\frac{1}{2}$ -6x3 $\frac{1}{2}$ x $\frac{3}{8}$ "	359.0			
C-2	24.36	12700	151.36	15.32	" D ϕ "	365.0			
					" "	730.0			
					" "	359.0			
D-5	24.36	12560	149.96	15.32	" D ϕ "	365.0			
					" "	730.0			
					" "	359.0			
E-6	24.36	124.02	148.38	15.32	" D ϕ "	365.0			
					" "	730.0			
					" "	359.0			
					" "	359.0	No Change		
X-1	25.30	125.80	151.10	15.65	2-L $\frac{1}{2}$ -8x8x $\frac{3}{4}$ "	1216.0			
X-3	20.20	108.25	128.45	15.65	2-L $\frac{1}{2}$ -8x8x $\frac{3}{4}$ "	1216.0			
X-7	10.02	71.75	81.77	28.70	2-L $\frac{1}{2}$ -6x6x $\frac{1}{2}$ "	1125.0			
1-2	2.02	740	942	319	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$ "	24.0			
2-3	5.09	18.30	23.39	15.65	2-L $\frac{1}{2}$ -3x2 $\frac{1}{2}$ x $\frac{1}{2}$ "	266.0			
3-4	4.04	14.79	18.83	6.38	2-L $\frac{1}{2}$ -3x2 $\frac{1}{2}$ x $\frac{3}{8}$ "	84.0			
4-5	5.09	18.30	23.39	15.65	2-L $\frac{1}{2}$ -3x2 $\frac{1}{2}$ x $\frac{1}{2}$ "	266.0			
5-6	2.02	740	942	319	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$ "	24.0			
6-7	10.18	35.85	46.03	15.65	2-L $\frac{1}{2}$ -6x4x $\frac{5}{8}$ "	625.0			
4-7	15.27	54.25	69.52	15.65	2-L $\frac{1}{2}$ -6x4x $\frac{5}{8}$ "	625.0			
Tie 7-7'				12.50	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$ "	46.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
9720	932.0	8.10	6.65			1171.0	8.7		

SPAN 120'-0" RISE 12'-6" DISTANCE, CENTER TO CENTER 25'-0"

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	2700	14150	16850	15.32	1-P1-16"x $\frac{1}{2}$ "	4170			
					1-P1-14"x1"	7300			
					2-L $\frac{1}{2}$ -6"x4"x $\frac{3}{8}$ "	3770			
C-2	2700	13995	16695	15.32	"D _o "	4170			
					"	7300			
					"	3770			
D-3	2700	13830	16530	15.32	"D _o "	4170			
					"	7300			
					"	3770			
E-6	2700	13680	16380	15.32	"D _o "	4170			
					"	7300			
					"	3770	No	Change	
X-1	2803	13850	16653	15.65	2-L $\frac{1}{2}$ -8"x8"x $\frac{1}{16}$ "	13140			
X-3	2240	11930	14170	15.65	2-L $\frac{1}{2}$ -8"x8"x $\frac{1}{16}$ "	13140			
X-5	1111	7900	9011	28.70	2-L $\frac{1}{2}$ -6"x6"x $\frac{1}{16}$ "	15200			
1-2	224	815	1039	319	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	240			
2-3	565	2016	2581	15.65	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{9}{16}$ "	2970			
3-4	448	1630	2078	638	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{7}{16}$ "	970			
4-5	565	2016	2581	15.65	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{9}{16}$ "	2970			
5-6	224	815	1039	319	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	240			
6-7	1130	3950	5080	15.65	2-L $\frac{1}{2}$ -5"x3 $\frac{1}{2}$ "x $\frac{3}{4}$ "	6660			
4-7	1693	5980	7673	15.65	2-L $\frac{1}{2}$ -5"x3 $\frac{1}{2}$ "x $\frac{3}{4}$ "	6660			
Tie 7-7'				12.50	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	460			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of TRUSS	Weight per Sq. Ft. H. P.		
10800	10730	8.67	477			124590	8.3		

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	1445	5105	65.50	15.50	1-P1-10X $\frac{1}{2}$ "	2540			
					1-P1-12X $\frac{1}{2}$ "	3160			
					2-L5-4X3X $\frac{3}{8}$ "	2540			
C-2	1445	5007	64.52	15.50	"D0"	2540			
					"	3160			
					"	2540			
D-5	1445	4940	63.85	15.50	"D0"	2540			
					"	3160			
					"	2540			
E-6	1445	4860	63.05	15.50	"D0"	2540			
					"	3160			
					"	2540			
X-1	1640	4918	65.88	16.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	2540	67.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	547.0
X-3	1225	4600	54.25	16.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	3940	55.75	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	547.0
X-7	1185	2824	40.09	14.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	2100	40.90	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	210.0
1-2	1.46	340	4.87	3.87	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	205			
2-3	2.98	703	10.01	16.00	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	1290			
3-4	2.92	684	9.76	7.75	2-L5-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	825			
4-5	2.98	703	10.01	16.00	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	1290			
5-6	1.46	341	4.87	3.87	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	205			
6-7	6.05	1400	20.05	16.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{2}$ "	179.5			
4-7	9.05	2112	30.17	16.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{2}$ "	179.5			
T Re 7-7'				15.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{2}$ "	111.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
4320	175	3.4	3.0		185	5129	9.2		

SPAN 120'-0"

DISTANCE, CENTER TO CENTER /2'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	CENTER ASSUMED SECTION	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B 1	18.11	62.08	80.19	15.50	1-P1-10X $\frac{1}{2}$ "			264.0
					1-P1-12X $\frac{1}{2}$ "			316.0
					2-L5-4X3X $\frac{3}{8}$ "			264.0
C-2	18.11	60.85	78.96	15.50	"D0"			264.0
					"			316.0
					"			264.0
D-5	18.11	60.10	78.21	15.50	"D0"			264.0
					"			316.0
					"			264.0
E 6	18.11	59.10	77.21	15.50	"D0"			264.0
					"			316.0
X-1	20.56	60.15	80.71	16.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	83.76	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{4}$ "	716.0
X-3	15.38	51.60	66.98	16.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	69.58	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{4}$ "	716.0
X-7	7.84	34.60	42.44	14.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	44.24	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	328.0
1-2	1.83	4.14	5.97	3.87	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "			19.4
2-3	3.73	8.54	12.27	16.00	1-L-2 $\frac{1}{2}$ X2X $\frac{1}{2}$ "			108.9
3-4	3.66	8.28	11.94	7.75	2-L5-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	12.36	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{2}$ "	105.5
4-5	3.73	8.54	12.27	16.00	1-L-2 $\frac{1}{2}$ X2X $\frac{1}{2}$ "			108.9
5-6	1.83	4.14	5.97	3.87	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "			19.4
6-7	7.58	17.03	24.61	16.00	2-L5-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	25.48	2-L5-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{5}{8}$ "	367.5
4-7	11.01	25.68	36.69	16.00	2-L5-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	38.01	2-L5-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{5}{8}$ "	367.5
Tie T-7'				15.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "			111.0
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.	
5400	217	4.2	3.2		261.0	646.8	8.6	

SPAN 120'-0"

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MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	25.32	84.60	109.92	15.50	1-P1-12X $\frac{3}{4}$ " 1-P1-10X $\frac{1}{2}$ " 2-L5-4X3X $\frac{5}{8}$ "	2640 4750 4210			
C-2	25.32	83.25	109.57	15.50	"Do"	2640 4750 4210			
D-5	25.32	82.10	107.42	15.50	"Do"	2640 4750 4210			
E-6	25.32	80.80	106.12	15.50	"Do"	2640 4750 4210			
X-1	28.90	82.40	111.30	16.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{7}{8}$ "	8220	115.10	2-L5-6X3 $\frac{1}{2}$ X $\frac{15}{16}$ "	874.0
X-3	21.50	70.60	92.10	16.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{7}{8}$ "	8220	96.10	2-L5-6X3 $\frac{1}{2}$ X $\frac{15}{16}$ "	874.0
X-7	21.20	47.35	68.55	14.00	2-L5-6X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	5300	71.80	2-L5-6X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	5300
1-2	2.56	5.65	8.21	3.87	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	294			
2-3	5.23	11.67	16.90	16.00	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	89.7			
3-4	5.13	11.30	16.43	7.75	2-L5-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	147.0			
4-5	5.23	11.67	16.90	16.00	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	89.7			
5-6	2.56	5.65	8.21	3.87	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	294			
6-7	10.60	23.24	33.84	16.00	2-L5-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{13}{16}$ "	400.0			
4-7	15.87	35.10	50.97	16.00	2-L5-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{13}{16}$ "	400.0			
Tie 7-7'				15.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	111.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
7560	482	6.0	3.8		484	8526	8.1		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	28.90	96.10	125.00	15.00	1-P1-12x1 $\frac{1}{2}$ "	316.0			
					1-P1-14x1"	737.0			
					2-L5-5x3 $\frac{1}{2}$ x $\frac{3}{8}$ "	322.0			
C-2	28.90	94.60	123.50	15.00	"D ₀ "	316.0			
					"	737.0			
					"	322.0			
D-5	28.90	93.30	122.20	15.00	"D ₀ "	316.0			
					"	737.0			
					"	322.0			
E-6	28.90	91.80	120.70	15.00	"D ₀ "	316.0			
					"	737.0			
					"	322.0			
X-1	32.80	93.50	126.30	16.00	2-L5-6x3 $\frac{1}{2}$ x1"	925.0	128.40	2-L5-6x4x1"	980.0
X-3	24.50	80.10	104.60	16.00	2-L5-6x3 $\frac{1}{2}$ x1"	925.0	106.60	2-L5-6x4x1"	980.0
X-7	24.20	53.80	78.00	14.00	2-L5-6x3 $\frac{1}{2}$ x $\frac{5}{8}$ "	530.0			
1-2	2.92	6.42	9.34	3.87	1-L-3x3x $\frac{3}{8}$ "	27.8			
2-3	5.96	13.25	19.21	16.00	1-L-3x2 $\frac{1}{2}$ x $\frac{5}{8}$ "	166.5			
3-4	5.84	12.87	18.71	7.75	2-L5-3x2 $\frac{1}{2}$ x $\frac{9}{16}$ "	147.0			
4-5	5.96	13.25	19.21	16.00	1-L-3x2 $\frac{1}{2}$ x $\frac{5}{8}$ "	166.5			
5-6	2.92	6.42	9.34	3.87	1-L-3x3x $\frac{3}{8}$ "	27.8			
6-7	12.10	26.40	38.50	16.00	2-L5-3 $\frac{1}{2}$ x3x $\frac{3}{4}$ "	470.0			
4-7	18.10	39.90	58.00	16.00	2-L5-3 $\frac{1}{2}$ x3x $\frac{3}{4}$ "	470.0			
Tie 7-7 $\frac{1}{2}$				15.00	2-L5-2 $\frac{1}{4}$ x2x $\frac{1}{2}$ "	111.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
8640	620	6.7	4.4		635	10131	8.7		

SPAN 120'-0"

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SPAN 120'-0"

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SPAN 120'-0" RISE 17'-6" DISTANCE, CENTER TO CENTER 10'-0"

[illegible]

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	17.13	56.85	73.98	15.60	1-Pl.-10"x $\frac{1}{2}$ "	265.0			
					1-Pl.-12"x $\frac{3}{8}$ "	239.0			
					2-L $\frac{1}{2}$ -4"x3"x $\frac{7}{16}$ "	299.0			
C-2	17.13	55.65	72.78	15.60	"Do"	265.0			
					"	239.0			
					"	299.0			
D-5	17.13	54.50	71.63	15.60	"Do"	265.0			
					"	239.0			
					"	299.0			
E-6	17.13	53.25	70.38	15.60	"Do"	265.0			
					"	239.0			
					"	299.0			
							No Change		
X-1	18.40	54.70	73.10	16.27	2-L $\frac{1}{2}$ -6"x6"x $\frac{1}{2}$ "	638.0			
X-3	14.73	50.60	65.33	16.27	2-L $\frac{1}{2}$ -6"x6"x $\frac{1}{2}$ "	638.0			
X-7	7.26	31.41	38.67	27.46	2-L $\frac{1}{2}$ -4"x4"x $\frac{3}{8}$ "	544.0			
I-2	2.04	4.35	6.39	4.55	2-L $\frac{1}{2}$ -2"x2"x $\frac{5}{16}$ "	41.0			
2-3	3.67	7.80	11.47	16.27	2-L $\frac{1}{2}$ -2"x2"x $\frac{5}{16}$ "	146.0			
3-4	4.08	8.70	12.78	9.10	2-L $\frac{1}{2}$ -3"x2"x $\frac{3}{8}$ "	120.0			
4-5	3.67	7.80	11.47	16.27	2-L $\frac{1}{2}$ -2"x2"x $\frac{5}{16}$ "	146.0			
5-6	2.04	4.35	6.39	4.55	2-L $\frac{1}{2}$ -2"x2"x $\frac{5}{16}$ "	41.0			
6-7	5.88	15.50	21.38	16.27	2-L $\frac{1}{2}$ -5"x3"x $\frac{5}{16}$ "	267.0			
4-7	11.39	23.40	34.79	16.27	2-L $\frac{1}{2}$ -5"x3"x $\frac{5}{16}$ "	267.0			
Tie 7-7'				17.50	2-L $\frac{1}{2}$ -2"x2"x $\frac{1}{4}$ "	66.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
5400	547.0	9.05	4.88			6438.0	8.58		

SPAN 120'-0"

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MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	23.92	80.90	104.82	15.60	1-P1-10"x $\frac{1}{2}$ "	265.0			
					1-P1-12"x $\frac{3}{4}$ "	477.0			
					2-L3-4"x3"x $\frac{1}{2}$ "	346.0			
C-2	23.92	792.0	103.12	15.60	'D ₀ '	265.0			
					"	477.0			
					"	346.0			
D-5	23.92	77.55	101.47	15.60	'D ₀ '	265.0			
					"	477.0			
					"	346.0			
E-6	23.92	75.75	99.67	15.60	'D ₀ '	265.0			
					"	477.0			
					"	346.0			
							No Change		
X-1	25.70	77.80	103.50	16.27	2-L3-8"x8"x $\frac{1}{2}$ "	860.0			
X-3	20.55	71.95	92.50	16.27	2-L3-8"x8"x $\frac{1}{2}$ "	860.0			
X-7	10.15	44.72	54.87	27.46	2-L3-4"x4"x $\frac{9}{16}$ "	787.0			
1-2	28.5	6.19	9.04	4.55	2-L3-2"x $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	41.0			
2-3	5.13	11.10	16.23	16.27	2-L3-2"x $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	172.0			
3-4	5.70	12.39	18.09	9.10	2-L3-3"x $\frac{1}{2}$ "x2"x $\frac{7}{16}$ "	151.0			
4-5	5.13	11.10	16.23	16.27	2-L3-2"x $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	172.0			
5-6	28.5	6.19	9.04	4.55	2-L3-2"x $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	41.0			
6-7	8.21	22.04	30.25	16.27	2-L3-4"x4"x $\frac{1}{2}$ "	415.0			
4-7	15.90	33.28	49.18	16.27	2-L3-4"x4"x $\frac{1}{2}$ "	415.0			
Tie 7-7'				17.50	2-L3-2"x $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	66.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
7560	760.0	9.16	4.24			8844.0	842		

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	27.30	92.23	119.53	15.60	1-P1-12"x $\frac{1}{2}$ "	316.0			
					1-P1-14"x $\frac{9}{16}$ "	417.0			
					2-L3-5"x3"x $\frac{1}{2}$ "	399.0			
C-2	27.30	90.30	117.60	15.60	"D ₀ "	316.0			
					"	417.0			
					"	399.0			
D-5	27.30	88.40	115.70	15.60	"D ₀ "	316.0			
					"	417.0			
					"	399.0			
E-6	27.30	86.40	113.70	15.60	"D ₀ "	316.0			
					"	417.0			
					"	399.0	No Change		
X-1	29.30	88.70	118.00	16.27	2-L3-8"x8"x $\frac{9}{16}$ "	963.0			
X-3	23.45	84.50	107.95	16.27	2-L3-8"x8"x $\frac{9}{16}$ "	963.0			
X-7	11.58	51.00	62.58	27.46	2-L3-6"x6"x $\frac{3}{8}$ "	818.0			
1-2	3.25	7.05	10.30	4.55	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	41.0			
2-3	5.85	12.65	18.50	16.27	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	172.0			
3-4	6.50	14.11	20.60	9.10	2-L3-3 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{7}{16}$ "	151.0			
4-5	5.85	12.65	18.50	16.27	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	172.0			
5-6	3.25	7.05	10.30	4.55	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	41.0			
6-7	9.36	25.15	34.51	16.27	2-L3-4"x4"x $\frac{9}{16}$ "	466.0			
4-7	18.11	37.90	56.01	16.27	2-L3-4"x4"x $\frac{9}{16}$ "	466.0			
Tr 7-7'				17.50	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	66.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
8640	8.16	9.13	2.47			9500.0	7.91		

SPAN	RISE	DISTANCE, CENTER TO CENTER
120'-0"	17'-6"	22'-6"

RISE 17'-6"

DISTANCE, CENTER TO CENTER 22'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	30.81	105.30	136.11	15.60	1-P1-12"x $\frac{1}{2}$ "	318.0			
					1-P1-14"x $\frac{5}{8}$ "	464.0			
					2-L $\frac{1}{2}$ -5"x3 $\frac{1}{2}$ "x $\frac{5}{8}$ "	524.0			
C-2	30.81	103.10	133.91	15.60	"D ϕ "	318.0			
					"	464.0			
					"	524.0			
D-5	30.81	101.00	131.01	15.60	"D ϕ "	318.0			
					"	464.0			
					"	524.0			
E-6	30.81	98.70	129.51	15.60	"D ϕ "	318.0			
					"	464.0			
					"	524.0			
X-1	33.10	101.30	134.40	16.27	2-L $\frac{1}{2}$ -8"x8"x $\frac{11}{16}$ "	1175.0		No Change	
X-3	26.50	93.60	120.10	16.27	2-L $\frac{1}{2}$ -8"x8"x $\frac{11}{16}$ "	1175.0			
X-7	13.07	58.20	71.27	27.46	2-L $\frac{1}{2}$ -6"x6"x $\frac{9}{16}$ "	945.0			
I-2	3.67	8.06	11.73	4.55	2-L $\frac{1}{2}$ -2"x2"x $\frac{5}{16}$ "	41.0			
2-3	6.61	14.45	21.06	16.27	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	182.0			
3-4	7.34	16.11	23.45	9.10	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	171.0			
4-5	6.61	14.45	21.06	16.27	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	182.0			
5-6	3.67	8.06	11.73	4.55	2-L $\frac{1}{2}$ -2"x2"x $\frac{5}{16}$ "	41.0			
6-7	10.56	28.70	39.26	16.27	2-L $\frac{1}{2}$ -6"x4"x $\frac{1}{2}$ "	527.0			
4-7	21.55	43.30	64.85	16.27	2-L $\frac{1}{2}$ -6"x4"x $\frac{1}{2}$ "	527.0			
Tie T-1				17.50	2-L $\frac{1}{2}$ -2"x2"x $\frac{1}{4}$ "	66.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
972.0	929.0	9.10	2.79			10842.0	8.04		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	3430	116.80	151.10	15.60	1-Pl.-12"x $\frac{1}{2}$ "	318.0			
					1-Pl.-14"x1"	742.0			
					2-1 $\frac{1}{2}$ -5"x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	324.0			
C-2	3430	114.20	148.50	15.60	"Do"	318.0			
					"	742.0			
					"	324.0			
D-5	3430	111.95	146.25	15.60	"Do"	318.0			
					"	742.0			
					"	324.0			
E-6	3430	109.30	143.60	15.60	"Do"	318.0			
					"	742.0			
					"	324.0	No Change		
X-1	3680	112.20	149.00	16.27	2-1 $\frac{1}{2}$ -8"x8"x $\frac{3}{4}$ "	1266.0			
X-3	2949	103.80	133.29	16.27	2-1 $\frac{1}{2}$ -8"x8"x $\frac{3}{4}$ "	1266.0			
X-7	1452	64.60	79.12	27.46	2-1 $\frac{1}{2}$ -6"x6"x $\frac{1}{2}$ "	1077.0			
1-2	408	8.93	13.01	4.55	2-1 $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	41.0			
2-3	736	16.05	23.41	16.27	2-1 $\frac{1}{2}$ -3 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	215.0			
3-4	816	17.87	26.03	9.10	2-1 $\frac{1}{2}$ -3 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{9}{16}$ "	189.0			
4-5	736	16.05	23.41	16.27	2-1 $\frac{1}{2}$ -3 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	215.0			
5-6	408	8.93	13.01	4.55	2-1 $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	41.0			
6-7	11.75	31.81	43.56	16.27	2-1 $\frac{1}{2}$ -6"x6"x $\frac{7}{16}$ "	560.0			
4-7	22.80	48.00	70.80	16.27	2-1 $\frac{1}{2}$ -6"x6"x $\frac{7}{16}$ "	560.0			
The 7-7'				17.50	2-1 $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	66.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
10800	999.0	9.08	1.97			11680.0	7.79		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	14.90	40.00	54.90	15.81	1-P1-10X $\frac{1}{2}$ " 1-P1-10X $\frac{3}{8}$ " 2-L5-4X3X $\frac{3}{8}$ "	269.0 202.0 269.0			
C-2	14.90	39.00	53.90	15.81	"Do" " " "Do" " "Do"	269.0 202.0 269.0 269.0 202.0 269.0			
D-5	14.90	37.80	52.70	15.81	" " "Do"	269.0 202.0 269.0		No change	
E-6	14.90	36.80	51.70	15.81	" " "Do"	269.0 202.0 269.0			
X-1	15.98	37.90	53.88	16.67	2-L5-6X3 $\frac{1}{2}$ X $\frac{1}{2}$ "	510.0			
X-3	12.70	32.50	45.20	16.67	2-L-6X3 $\frac{1}{2}$ X $\frac{1}{2}$ "	510.0			
X-7	6.34	21.60	27.94	26.58	2-L-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	597.0			
1-2	1.98	3.44	5.40	5.29	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	41.2			
2-3	3.21	5.43	8.64	16.67	1-L-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	75.0			
3-4	3.96	6.88	10.84	10.58	2-L-3X2 $\frac{1}{2}$ X $\frac{3}{8}$ "	139.5			
4-5	3.21	5.43	8.64	16.67	1-L-2 $\frac{1}{2}$ X2X $\frac{5}{16}$ "	75.0			
5-6	1.98	3.44	5.42	5.29	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	41.2			
6-7	6.34	10.89	17.23	16.67	2-L-3 $\frac{1}{2}$ X3X $\frac{3}{8}$ "	263.2			
4-7	9.55	16.32	25.97	16.67	2-L-3 $\frac{1}{2}$ X3X $\frac{3}{8}$ "	263.2			
Tie 7-7'				20.00	2-L-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	140.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
4320	212	4.0	3.0			5403	9.2		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	18.57	50.20	68.77	15.81	1-P1-10"x $\frac{1}{2}$ "	2690			
					1-P1-10"x $\frac{1}{2}$ "	2690			
					2-L5-4"x3"x $\frac{3}{8}$ "	2690			
C-2	18.57	48.80	67.37	15.81	"D ₀ "	2690			
					"	2690			
					"	2690			
D-5	18.57	47.40	65.97	15.81	"D ₀ "	2690			
					"	2690		No change	
					"	2690			
E-6	18.57	45.90	64.47	15.81	"D ₀ "	2690			
					"	2690			
					"	2690			
X-1	19.90	47.60	67.50	16.67	2-L5-6"x3 $\frac{1}{2}$ "x $\frac{5}{8}$ "	6300			
X-3	15.85	40.80	56.65	16.67	2-L5-6"x3 $\frac{1}{2}$ "x $\frac{5}{8}$ "	6300			
X-7	7.90	27.10	35.00	26.58	2-L5-6"x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	6200			
1-2	2.47	4.31	6.78	5.29	1-L-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	280			
2-3	3.98	6.82	10.80	16.67	1-L-2 $\frac{1}{2}$ "x2"x $\frac{7}{16}$ "	1018			
3-4	4.95	8.62	13.57	10.58	2-L3-3"x2 $\frac{1}{2}$ "x $\frac{3}{8}$ "	1397			
4-5	3.98	6.82	10.80	16.67	1-L-2 $\frac{1}{2}$ "x2"x $\frac{7}{16}$ "	1018			
5-6	2.47	4.31	6.78	5.29	1-L-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	280			
6-7	7.90	13.65	21.45	16.67	2-L5-3 $\frac{1}{2}$ "x3"x $\frac{3}{8}$ "	2635			
4-7	11.90	20.48	32.38	16.67	2-L5-3 $\frac{1}{2}$ "x3"x $\frac{3}{8}$ "	2635			
Tie 7-7'				20.00	2-L5-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	1400			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
5700	265	4.4	2.4			6291	8.4		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	22.30	60.00	82.30	15.81	1-PI-10X $\frac{1}{2}$ "	269.0			
					1-PI-12X $\frac{1}{2}$ "	323.0			
					2-L5-4X3X $\frac{3}{8}$ "	269.0			
C-2	22.30	58.20	80.50	15.81	"Do"	269.0			
					"	323.0			
					"	269.0			
D-5	22.30	56.50	78.80	15.81	"Do"	269.0			
					"	323.0			
					"	269.0			
E-6	22.30	54.80	77.10	15.81	"Do"	269.0			
					"	323.0			
					"	269.0			
X-1	24.00	56.80	80.80	16.67	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{4}$ "	747.0			
X-3	19.06	48.60	67.66	16.67	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{4}$ "	747.0			
X-7	9.51	32.30	41.81	26.58	2-L5-6X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	622.0			
1-2	2.97	5.15	8.12	5.29	1-L-2 $\frac{1}{2}$ X2X $\frac{7}{16}$ "	32.2			
2-3	4.82	8.14	12.96	16.67	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	126.5			
3-4	5.94	10.30	16.24	10.58	2-L5-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	201.0			
4-5	4.82	8.14	12.96	16.67	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	126.5			
5-6	2.97	5.15	8.12	5.29	1-L-2 $\frac{1}{2}$ X2X $\frac{7}{16}$ "	32.2			
6-7	9.51	16.30	25.81	16.67	2-L5-3 $\frac{1}{2}$ X3X $\frac{1}{2}$ "	340.0			
4-7	16.38	24.50	40.88	16.67	2-L5-3 $\frac{1}{2}$ X3X $\frac{1}{2}$ "	340.0			
Tie 7-7'				20.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	140.0			
Assumed Weight of Truss	Weight Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
6480	323	48	1.3			7072	7.8		

SPAN 120'-0"

7500

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	2980	82.00	111.80	15.81	1-P1-10X $\frac{1}{2}$ "	259.0			
					1-P1-12X $\frac{3}{4}$ "	485.0			
					2-L5-4X3X $\frac{5}{8}$ "	430.0			
C-2	2980	79.60	109.40	15.81	"Do"	259.0			
					"	485.0			
					"	430.0			
D-5	2980	77.40	107.20	15.81	"Do"	259.0			
					"	485.0	No change		
					"	430.0			
E-6	2980	75.00	104.80	15.81	"Do"	259.0			
					"	485.0			
					"	259.0			
X-1	3195	77.60	108.55	16.67	2-L5-6X4X $\frac{1}{2}$ "	1020.0			
X-3	25.40	66.50	91.90	16.67	2-L5-6X4X $\frac{1}{2}$ "	1020.0			
X-7	12.68	44.30	56.98	26.58	2-L5-6X4X $\frac{1}{2}$ "	759.0			
1-2	3.96	7.05	11.01	5.29	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	40.2			
2-3	6.42	11.10	17.52	16.67	1-L-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	158.2			
3-4	7.92	14.10	22.02	10.58	2-L5-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	256.5			
4-5	6.42	11.10	17.52	16.67	1-L-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	158.2			
5-6	3.96	7.05	11.01	5.29	1-L-2 $\frac{1}{2}$ X2X $\frac{9}{16}$ "	40.2			
6-7	12.68	22.30	34.98	16.67	2-L5-3 $\frac{1}{2}$ X3X $\frac{5}{8}$ "	417.0			
4-7	19.10	33.50	52.60	16.67	2-L5-3 $\frac{1}{2}$ X3X $\frac{5}{8}$ "	417.0			
Tie 7-7'				20.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	140.0			
Assumed Weight of Truss	Weight Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
8640	55.55	5.5	1.6			9622	8.0		

SPAN / 20'-0"	RISE 20'-0"	DISTANCE, CENTER TO CENTER 22'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	33.50	93.00	126.50	15.81	1-PL-12X $\frac{1}{2}$ "	2690			
					1-PL-14X $\frac{3}{4}$ "	5650			
					2-LS-5X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	3290			
C-2	33.50	90.50	124.00	15.81	"D ₀ "	2690			
					"	5650			
					"	3290			
D-5	33.50	87.70	121.20	15.81	"D ₀ "	2690			
					"	5650			
					"	3290			
E-6	33.50	85.00	118.50	15.81	"D ₀ "	2690			
					"	5650			
					"	3290			
X-1	35.90	87.10	123.00	16.67	2-LS-6X6X $\frac{1}{8}$ "	10320			
X-3	28.58	75.50	104.08	16.67	2-LS-6X6X $\frac{1}{8}$ "	10320			
X-5	14.25	50.20	64.45	26.58	2-LS-6X6X $\frac{7}{16}$ "	9140			
1-2	4.45	8.00	12.45	5.29	2-LS-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	561			
2-3	7.22	12.60	19.82	16.67	2-LS-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	176.7			
3-4	8.90	16.00	24.90	10.58	2-LS-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{1}{16}$ "	2650			
4-5	7.22	12.60	19.82	16.67	2-LS-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	176.7			
5-6	4.45	8.00	12.45	5.29	2-LS-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	561			
6-7	14.25	25.30	39.55	16.67	2-LS-3 $\frac{1}{2}$ X3X $\frac{3}{4}$ "	4900			
4-7	21.43	38.00	59.43	16.67	2-LS-3 $\frac{1}{2}$ X3X $\frac{3}{4}$ "	4900			
Tie 1-7'				20.00	2-LS-2 $\frac{1}{4}$ X2X $\frac{1}{4}$ "	1400			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
9720	559	5.9	47			10047	7.5		

SPAN 120'-0" RISE 20'-0" DISTANCE, CENTER TO CENTER 25'-0"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	3720	103.50	140.70	15.81	1-P1-12X $\frac{1}{2}$ "	269.0			
					1-P1-14X $\frac{3}{8}$ "	660.0			
					2-L5-5X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	329.0			
C-2	3720	100.50	137.70	15.81	"Do"	269.0			
					"	660.0			
					"	329.0			
D-5	3720	97.60	134.80	15.81	"Do"	269.0			
					"	660.0			
					"	329.0			
E-6	3720	94.80	132.00	15.81	"Do"	269.0			
					"	660.0			
					"	329.0			
X-1	3990	98.00	137.90	16.67	2-L5-6X6X $\frac{1}{16}$ "	1172.0			
X-3	3180	84.00	115.80	16.67	2-L5-6X6X $\frac{1}{16}$ "	1172.0			
X-7	15.75	55.80	71.55	26.58	2-L5-6X6X $\frac{1}{16}$ "	908.0			
1-2	4.95	8.88	13.83	5.29	2-L5-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	56.0			
2-3	8.02	14.10	22.12	16.67	2-L5-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	176.5			
3-4	9.40	17.80	27.20	10.58	2-L5-3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{1}{16}$ "	264.2			
4-5	8.02	14.10	22.12	16.67	2-L5-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	176.5			
5-6	4.95	8.88	13.83	5.29	2-L5-2 $\frac{1}{2}$ X2X $\frac{3}{8}$ "	56.0			
6-7	15.75	28.15	43.90	16.67	2-L5-3 $\frac{1}{2}$ X3X $\frac{3}{8}$ "	560.0			
4-7	23.84	42.20	66.04	16.67	2-L5-3 $\frac{1}{2}$ X3X $\frac{3}{8}$ "	560.0			
Tie 7-7'				20.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	148.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
10800	6840	6.2	.21			10963	7.3		

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	12.68	37.01	49.69	15.90	1-PL-10"x $\frac{1}{2}$ "	2790			
					1-PL-10"x $\frac{5}{16}$ "	1740			
					2-L $\frac{1}{2}$ -4"x3"x $\frac{5}{16}$ "	2360			
C-2	12.68	34.75	47.43	15.90	"D ϕ "	2790			
					"	1740			
					"	2360			
D-5	12.68	33.50	46.18	15.90	"D ϕ "	2790			
					"	1740			
					"	2360			
E-6	12.68	31.90	44.58	15.90	"D ϕ "	2790			
					"	1740			
					"	2360			
X-1	14.33	33.70	48.03	17.20	2-L $\frac{1}{2}$ -5"x3 $\frac{1}{2}$ "x $\frac{7}{16}$ "	4130	No Change		
X-3	11.47	28.84	40.31	17.20	2-L $\frac{1}{2}$ -5"x3 $\frac{1}{2}$ "x $\frac{7}{16}$ "	4130			
X-7	10.70	19.07	29.77	25.60	2-L $\frac{1}{2}$ -3 $\frac{1}{2}$ "x3"x $\frac{5}{16}$ "	3690			
1-2	2.02	3.39	5.41	5.88	1-L-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	310			
2-3	3.87	4.94	8.81	17.20	1-L-2 $\frac{1}{2}$ "x2"x $\frac{7}{16}$ "	1310			
3-4	4.04	6.76	11.80	11.76	2-L $\frac{1}{2}$ -3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	1440			
4-5	3.87	4.94	8.81	17.20	1-L-2 $\frac{1}{2}$ "x2"x $\frac{7}{16}$ "	1310			
5-6	2.02	3.39	5.41	5.88	1-L-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	310			
6-7	5.86	9.76	15.62	17.20	2-L $\frac{1}{2}$ -3 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	2110			
4-7	8.69	14.65	23.34	17.20	2-L $\frac{1}{2}$ -3 $\frac{1}{2}$ "x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	2110			
Tie 7-7'				22.50	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	870			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
4320	272	566	3.86			4996.0	8.34		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B 1	15.83	46.05	61.88	15.90	1-P1-10"x $\frac{1}{2}$ "	279.0			
					1-P1-10"x $\frac{3}{8}$ "	203.0			
					2-L $\frac{1}{2}$ -4"x3"x $\frac{3}{8}$ "	279.0			
C-2	15.83	44.45	60.28	15.90	"D ϕ "	279.0			
					"	203.0			
					"	279.0			
D-5	15.83	42.80	58.63	15.90	"D ϕ "	279.0			
					"	203.0			
E 6	15.83	41.20	57.03	15.90	"D ϕ "	279.0			
					"	203.0			
					"	279.0	No Change		
X-1	17.90	43.05	60.95	17.20	2-L $\frac{1}{2}$ -6"x6"x $\frac{3}{8}$ "	513.0			
X-3	14.32	36.94	51.26	17.20	2-L $\frac{1}{2}$ -6"x6"x $\frac{3}{8}$ "	513.0			
X-5	7.01	24.36	31.37	25.60	2-L $\frac{1}{2}$ -4"x4"x $\frac{5}{16}$ "	420.0			
1-2	25.2	4.32	6.84	5.88	1-L-3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	33.0			
2-3	35.8	6.30	9.88	17.20	1-L-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	146.0			
3-4	5.04	8.65	13.69	11.76	2-L $\frac{1}{2}$ -4"x3"x $\frac{5}{16}$ "	169.0			
4-5	35.8	6.30	9.88	17.20	1-L-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	146.0			
5-6	25.2	4.32	6.84	5.88	1-L-3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	33.0			
6-7	7.31	12.47	19.78	17.20	2-L $\frac{1}{2}$ -4"x4"x $\frac{5}{16}$ "	282.0			
4-7	10.83	18.72	29.55	17.20	2-L $\frac{1}{2}$ -4"x4"x $\frac{5}{16}$ "	282.0			
Tie 7-7'				22.50	2-L $\frac{1}{2}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	87.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft H. P.		
5400	344.0	6.19	7.35			5797.0	7.72		

SPAN 120'-0" RISE 22'-6" DISTANCE, CENTER TO CENTER 15'-0"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B 1	18.97	56.25	75.22	15.90	1-PL-10x $\frac{1}{2}$ "	279.0			
					1-PL-12x $\frac{3}{8}$ "	243.0			
					2-L $\frac{3}{8}$ -4x3x $\frac{7}{8}$ "	312.0			
C-2	18.97	54.30	73.27	15.90	"D ϕ "	279.0			
					"	243.0			
					"	312.0			
D-5	18.97	52.30	71.27	15.90	"D ϕ "	279.0			
					"	243.0			
					"	312.0			
E-6	18.97	50.35	69.32	15.90	"D ϕ "	279.0			
					"	243.0			
					"	312.0	No Change		
X-1	21.22	52.55	73.77	17.20	2-L $\frac{3}{8}$ -6x6x $\frac{1}{2}$ "	675.0			
X-3	17.15	45.00	62.15	17.20	2-L $\frac{3}{8}$ -6x6x $\frac{1}{2}$ "	675.0			
X-5	8.40	29.76	38.16	25.60	2-L $\frac{3}{8}$ -4x4x $\frac{3}{8}$ "	507.0			
1-2	3.02	5.28	8.30	5.88	1-L-3x2 $\frac{1}{2}$ x $\frac{3}{8}$ "	39.0			
2-3	4.29	7.72	12.01	17.20	1-L-3x2 $\frac{1}{2}$ x $\frac{1}{2}$ "	146.0			
3-4	6.04	10.56	16.60	11.76	2-L $\frac{3}{8}$ -4x3x $\frac{5}{16}$ "	169.0			
4-5	4.29	7.72	12.01	17.20	1-L-3x2 $\frac{1}{2}$ x $\frac{1}{2}$ "	146.0			
5-6	3.02	5.28	8.30	5.88	1-L-3x2 $\frac{1}{2}$ x $\frac{3}{8}$ "	39.0			
6-7	8.76	15.22	23.98	17.20	2-L $\frac{3}{8}$ -4x4x $\frac{3}{8}$ "	340.0			
4-7	12.30	22.88	35.18	17.20	2-L $\frac{3}{8}$ -4x4x $\frac{3}{8}$ "	340.0			
Tie 7-7'				22.50	2-L $\frac{3}{8}$ -2 $\frac{1}{2}$ x2x $\frac{1}{4}$ "	87.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
6480	432.0	6.72	3.72			6721.0	7.47		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	22.15	66.15	88.30	15.90	1-Pl-10"x $\frac{1}{2}$ "	279.0			
					1-Pl-12"x $\frac{1}{2}$ "	325.0			
					2-Ls-4"x3"x $\frac{1}{2}$ "	353.0			
C-2	22.15	63.80	85.95	15.90	'D _o '	279.0			
					"	325.0			
					"	353.0			
D-5	22.15	61.50	83.65	15.90	'D _o '	279.0			
					"	325.0			
					"	353.0			
E-6	22.15	59.20	81.35	15.90	'D _o '	279.0			
					"	325.0			
					"	353.0	No Change		
X-1	25.08	61.75	86.83	17.20	2-Ls-6"x6"x $\frac{9}{16}$ "	754.0			
X-3	20.05	52.90	72.95	17.20	2-Ls-6"x6"x $\frac{9}{16}$ "	754.0			
X-5	9.82	35.00	44.02	25.60	2-Ls-4"x4"x $\frac{7}{16}$ "	579.0			
1-2	3.53	6.21	9.74	5.88	1-L-3"x2 $\frac{1}{2}$ "x $\frac{7}{16}$ "	45.0			
2-3	5.01	9.05	14.06	17.20	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	155.0			
3-4	7.06	12.42	19.48	11.76	2-Ls-4"x3"x $\frac{3}{8}$ "	200.0			
4-5	5.01	9.05	14.06	17.20	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	155.0			
5-6	3.53	6.21	9.74	5.88	1-L-3"x2 $\frac{1}{2}$ "x $\frac{7}{16}$ "	45.0			
6-7	10.23	17.90	18.13	17.20	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	358.0			
4-7	15.18	26.90	42.08	17.20	2-Ls-5"x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	358.0			
Tie 7-7'				22.50	2-Ls-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	87.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
7560	523	7.23	0.52			7599.0	7.25		



SPAN 120'-0"

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MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	28.52	86.10	114.62	15.90	1-Pl-10"x $\frac{1}{2}$ "	279.0			
					1-Pl-12"x $\frac{3}{4}$ "	487.0			
					2-L $\frac{3}{8}$ -4"x3"x $\frac{5}{8}$ "	432.0			
C-2	28.52	83.02	111.54	15.90	"Do"	279.0			
					"	487.0			
					"	432.0			
D-5	28.52	80.00	108.52	15.90	"Do"	279.0			
					"	487.0			
					"	432.0			
E-6	28.52	78.00	106.52	15.90	"Do"	279.0			
					"	487.0			
					"	432.0	No Change		
X-1	32.25	80.40	112.65	17.20	2-L $\frac{3}{8}$ -8"x8"x $\frac{9}{16}$ "	1019.0			
X-3	25.80	68.80	94.60	17.20	2-L $\frac{3}{8}$ -8"x8"x $\frac{9}{16}$ "	1019.0			
X-5	12.62	45.60	58.22	25.60	2-L $\frac{3}{8}$ -4"x4"x $\frac{9}{16}$ "	732.0			
1-2	4.54	8.08	12.62	5.88	2-L $\frac{3}{8}$ -2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	53.0			
2-3	6.45	11.78	18.23	17.20	2-L $\frac{3}{8}$ -2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	182.0			
3-4	9.08	16.15	25.23	11.76	2-L $\frac{3}{8}$ -4"x3"x $\frac{1}{2}$ "	262.0			
4-5	6.45	11.78	18.23	17.20	2-L $\frac{3}{8}$ -2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	182.0			
5-6	4.54	8.08	12.62	5.88	2-L $\frac{3}{8}$ -2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	53.0			
6-7	13.17	23.30	36.47	17.20	2-L $\frac{3}{8}$ -4"x4"x $\frac{9}{16}$ "	492.0			
4-7	19.53	35.00	54.53	17.20	2-L $\frac{3}{8}$ -4"x4"x $\frac{9}{16}$ "	492.0			
The 7-7'				22.50	2-L $\frac{3}{8}$ -2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	87.0			
Assumed Weight of Truss	Weight Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
9720	737.0	7.99	0.44			9763.0	7.25		

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	31.70	95.50	127.20	15.90	1-P1.-12"x $\frac{1}{2}$ "	325.0			
					1-P1.-14"x $\frac{3}{4}$ "	568.0			
					2-13-5"x3 $\frac{1}{2}$ "x $\frac{3}{8}$ "	331.0			
C-2	31.70	92.20	123.90	15.90	'D ₀ '	325.0			
					"	568.0			
					"	331.0			
D-5	31.70	88.80	120.50	15.90	'D ₀ '	325.0			
					"	568.0			
					"	331.0			
E-6	31.70	85.45	117.15	15.90	'D ₀ '	325.0			
					"	568.0			
					"	331.0	No Change		
X-1	3385	89.30	125.15	17.20	2-13-8"x8"x $\frac{5}{8}$ "	1123.0			
X-3	2868	76.40	105.08	17.20	2-13-8"x8"x $\frac{5}{8}$ "	1123.0			
X-5	14.03	50.60	64.63	25.60	2-13-4"x4"x $\frac{11}{16}$ "	876.0			
1-2	5.05	8.97	14.02	5.88	2-13-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	53.0			
2-3	7.15	13.07	20.22	17.20	2-13-3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	193.0			
3-4	10.10	17.92	28.02	11.76	2-13-4"x3"x $\frac{9}{16}$ "	292.0			
4-5	7.15	13.07	20.22	17.20	2-13-3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	193.0			
5-6	5.05	8.97	14.02	5.88	2-13-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	53.0			
6-7	14.65	26.82	41.47	17.20	2-13-4"x4"x $\frac{5}{8}$ "	540.0			
4-7	21.72	38.80	60.52	17.20	2-13-4"x4"x $\frac{5}{8}$ "	540.0			
Tie 7-7'				22.50	2-13-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	87.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
10800	883.0	8.37		2.50		10537.0	7.02		

SPAN	120'-0"	RISE	25'-0"
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4.9

SPAN 120'-0"

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MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B 1	21.05	61.30	82.35	16.25	1-P1-10X $\frac{1}{2}$ "	2760			
					1-P1-12X $\frac{1}{2}$ "	3320			
					2-L5-4X3X $\frac{3}{8}$ "	2760			
C-2	21.05	58.60	79.65	16.25	"Do."	2760			
					"	3320			
					"	2760			
D-5	21.05	56.10	77.15	16.25	"Do."	2760	No Change		
					"	3320			
					"	2320			
E-6	21.05	53.50	74.55	16.25	"Do."	2760			
					"	3320			
					"	2760			
X-1	24.55	56.60	81.15	17.58	2-L5-5X3 $\frac{1}{2}$ X $\frac{3}{4}$ "	6910			
X-3	19.55	48.50	68.05	17.58	2-L5-5X3 $\frac{1}{2}$ X $\frac{3}{4}$ "	6910			
X-7	9.62	32.60	42.22	24.75	2-L5-5X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	5150			
1-2	3.79	6.21	10.00	6.75	1-L-3X3X $\frac{5}{8}$ "	776			
2-3	5.00	8.15	13.15	17.58	1-L-3X2 $\frac{1}{2}$ X $\frac{7}{16}$ "	1335			
3-4	7.58	12.41	19.99	13.50	2-L-3 $\frac{1}{2}$ X3X $\frac{13}{16}$ "	4270			
4-5	5.00	8.15	13.15	17.58	1-L-3X2 $\frac{1}{2}$ X $\frac{7}{16}$ "	1335			
5-6	3.79	6.21	10.00	6.75	1-L-3X3X $\frac{5}{8}$ "	776			
6-7	9.92	15.95	25.87	17.58	2-L-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	3340			
4-7	14.92	24.10	39.02	17.58	2-L-3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	3340			
Tie 7-7'				25.00	2-L5-2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	900			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
7560	426	6.0		.15		7461	7.1*		

SPAN 120'-0" RISE 25'-0" DISTANCE, CENTER TO CENTER 20'-0"

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	24.15	67.20	91.35	16.25	1-P1-10"X $\frac{1}{2}$ "	276.0			
					1-P1-12"X $\frac{1}{2}$ "	332.0			
					2-L-4"X3"X $\frac{1}{2}$ "	361.0			
C-2	24.15	64.40	88.55	16.25	"D ₀ "	276.0			
					"	332.0			
					"	361.0			
D-5	24.15	61.60	85.75	16.25	"D ₀ "	276.0			
					"	332.0			
					"	361.0			
E-6	24.15	58.80	82.95	16.25	"D ₀ "	276.0	No change		
					"	332.0			
					"	361.0			
X-1	28.15	62.20	90.35	17.58	2-L-6"X3 $\frac{1}{2}$ "X $\frac{1}{16}$ "	724.0			
X-3	22.40	53.30	75.70	17.58	2-L-6"X3 $\frac{1}{2}$ "X $\frac{1}{16}$ "	724.0			
X-5	11.05	35.80	46.85	24.75	2-L-6"X3 $\frac{1}{2}$ "X $\frac{3}{8}$ "	579.0			
1-2	4.34	6.82	11.16	6.75	1-L-3"X3"X $\frac{5}{8}$ "	77.7			
2-3	5.74	8.89	14.63	17.58	1-L-3"X2 $\frac{1}{2}$ "X $\frac{7}{16}$ "	133.5			
3-4	8.68	13.62	22.30	13.50	2-L-4"X3"X $\frac{9}{16}$ "	335.0			
4-5	5.74	8.89	14.63	17.58	1-L-3"X2 $\frac{1}{2}$ "X $\frac{7}{16}$ "	133.5			
5-6	4.34	6.82	11.16	6.75	1-L-3"X3"X $\frac{5}{8}$ "	77.7			
6-7	11.39	17.50	28.89	17.58	1-L-3"X3"X $\frac{5}{8}$ "	330.0			
4-7	17.10	26.40	43.50	17.58	2-L-3 $\frac{1}{2}$ "X2 $\frac{1}{2}$ "X $\frac{1}{2}$ "	330.0			
Tie 7-7 ¹				25.00	2-L-2 $\frac{1}{2}$ "X2"X $\frac{1}{4}$ "	90.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
8640	445	6.0		1.2		7860	6.5		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	27.20	79.50	106.70	16.25	1-P1-10X $\frac{1}{2}$ " "5" 1-P1-12X $\frac{5}{8}$ " 2-L5-4X3X $\frac{5}{8}$ "	277.0 414.0 442.0			
C-2	27.20	76.50	103.20	16.25	"D0"	277.0			
					"	414.0			
					"	442.0			
D-5	27.20	72.60	99.80	16.25	"D0"	277.0			
					"	414.0			
					"	442.0			
E-6	27.20	69.40	96.60	16.25	"D0"	277.0			
					"	414.0			
					"	442.0			
X-1	31.60	73.40	105.00	17.58	2-L5-6X4X $\frac{1}{2}$ " "13"	894.0			
X-3	25.20	62.80	88.00	17.58	2-L5-6X4X $\frac{1}{2}$ " "13"	894.0			
X-7	12.40	42.20	54.60	24.75	2-L5-6X4X $\frac{3}{8}$ " "3"	609.0			
1-2	4.89	8.04	12.93	6.75	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{9}{16}$ " "9"	83.8			
2-3	6.45	10.55	17.00	17.58	1-L, 3X2 $\frac{1}{2}$ X $\frac{1}{2}$ " "5"	149.2			
3-4	9.78	16.10	25.88	13.50	2-L, 4X3X $\frac{5}{8}$ " "1"	367.0			
4-5	6.45	10.55	17.00	17.58	1-L, 3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{1}{2}$ " "5"	149.2			
5-6	4.89	8.04	12.93	6.75	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{9}{16}$ " "9"	83.8			
6-7	12.80	20.63	33.43	17.58	2-L5, 3 $\frac{1}{2}$ X3X $\frac{5}{8}$ " "5"	405.0			
4-7	19.23	31.12	50.35	17.58	2-L5, 3 $\frac{1}{2}$ X3X $\frac{5}{8}$ " "5"	405.0			
Tie 7-7'				25.00	2-L5, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ " "1"	90.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
9720	519	6.0		.8		9169.	6.79		

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	30.15	88.00	118.15	16.25	1-PL-10X $\frac{1}{2}$ "	277.0			
					1-PL-12X $\frac{3}{4}$ "	498.0			
					2-LS-4X3X $\frac{5}{8}$ "	442.0			
C-2	30.15	84.20	114.35	16.25	"Do"	277.0			
					"	498.0			
					"	442.0			
D-5	30.15	80.40	110.55	16.25	"Do"	277.0			
					"	498.0			
					"	442.0			
E-6	30.15	77.00	107.15	16.25	"Do"	277.0			
					"	498.0			
					"	442.0			
X-1	35.10	81.40	116.50	17.58	2-LS, 6X4X $\frac{7}{8}$ "	949.0			
X-3	28.00	69.60	97.60	17.58	2-LS, 6X4X $\frac{7}{8}$ "	949.0			
X-5	13.75	46.90	60.65	24.75	2-LS, 6X4X $\frac{7}{8}$ "	707.0			
1-2	5.42	8.92	14.34	6.75	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	91.8			
2-3	7.15	11.70	18.85	17.58	1-L, 3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	16.7			
3-4	10.82	17.85	28.67	13.50	2-LS, 4X3X $\frac{11}{16}$ "	400.0			
4-5	7.15	11.70	18.85	17.58	1-L, 3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	16.7			
5-6	5.42	8.92	14.34	6.75	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	91.8			
6-7	14.20	22.95	37.15	17.58	2-LS, 4X3X $\frac{5}{8}$ "	478.0			
4-7	21.35	34.50	55.85	17.58	2-LS, 4X3X $\frac{5}{8}$ "	478.0			
Tie 7-7'				25.00	2-LS, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	90.0			
Assumed Weight of Truss	Weight Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
10900	542	60		1.6		9670	6.45 [#]		

MEMBER	WIND LOAD STRESS, WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECTED MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	11.75	32.00	43.75	16.40	1-P1-8"x $\frac{1}{2}$ "	2230			
					1-P1-9"x $\frac{5}{16}$ "	1570			
					2-L3-4"x3"x $\frac{5}{16}$ "	2360			
C-2	11.75	30.45	42.20	16.40	'D ₀ '	2230			
					"	1570			
					"	2360			
D-5	11.75	28.90	40.65	16.40	'D ₀ '	2230			
					"	1570			
					"	2360			
E-6	11.75	27.38	39.13	16.40	'D ₀ '	2230			
					"	1570			
					"	2360			
X-1	14.07	29.10	43.17	18.13	2-L3-4"x3"x $\frac{9}{16}$ "	4000		No Change	
X-3	11.35	24.94	36.29	18.13	2-L3-4"x3"x $\frac{9}{16}$ "	4000			
X-7	5.64	16.55	22.19	23.75	2-L3-3 $\frac{1}{2}$ "x3"x $\frac{5}{16}$ "	3240			
1-2	2.33	3.46	5.79	7.48	1-L-3"x2 $\frac{1}{2}$ "x $\frac{5}{8}$ "	490			
2-3	2.85	4.10	6.95	18.13	1-L-2 $\frac{1}{2}$ "x2"x $\frac{5}{8}$ "	810			
3-4	4.66	7.74	12.40	14.96	2-L3-4"x3"x $\frac{5}{8}$ "	2150			
4-5	2.85	4.10	6.95	18.13	1-L-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	810			
5-6	2.33	3.46	5.79	7.48	1-L-3"x2 $\frac{1}{2}$ "x $\frac{5}{8}$ "	490			
6-7	5.62	8.16	13.78	18.13	2-L3-3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	2760			
4-7	13.14	12.60	25.74	18.13	2-L3-3"x2 $\frac{1}{2}$ "x $\frac{5}{16}$ "	2760			
T ₁₆ 7-71				27.50	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{5}{4}$ "	1230			
Assumed Weight of Fuses	Weight of Details	Details % of Center Line Weight	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Fuses	Weight per Sq. Ft. D. P.		
4320	302.0	6.45	305			48290	807		

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	14.71	40.10	54.81	16.40	1-P1-10"x $\frac{1}{2}$ "	279.0			
					1-P1-10"x $\frac{3}{8}$ "	209.0			
					2-L3-4"x $3\frac{5}{16}$ "	236.0			
C-2	14.71	38.15	52.86	16.40	'D _o '	279.0			
					"	209.0			
					"	236.0			
D-5	14.71	36.20	50.91	16.40	'D _o '	279.0			
					"	209.0			
					"	236.0			
E-6	14.71	34.30	49.01	16.40	'D _o '	279.0			
					"	209.0			
					"	236.0	No Change		
X-1	17.63	36.50	54.13	18.13	2-L3-4"x $4\frac{9}{16}$ "	517.0			
X-3	14.09	31.25	45.34	18.13	2-L3-4"x $4\frac{9}{16}$ "	517.0			
X-7	7.07	20.71	27.78	23.75	2-L3-3"x $3\frac{3}{8}$ "	378.0			
1-2	2.92	4.33	7.25	7.48	1-L-3"x $2\frac{1}{2}$ "x $\frac{7}{16}$ "	57.0			
2-3	3.56	5.28	8.84	18.13	1-L-3"x $2\frac{1}{2}$ "x $\frac{7}{16}$ "	137.0			
3-4	5.84	8.67	14.51	14.96	2-L3-4"x $3\frac{3}{8}$ "	255.0			
4-5	3.56	5.28	8.84	18.13	1-L-3"x $2\frac{1}{2}$ "x $\frac{7}{16}$ "	137.0			
5-6	2.92	4.33	7.25	7.48	1-L-3"x $2\frac{1}{2}$ "x $\frac{7}{16}$ "	57.0			
6-7	7.04	10.50	17.54	18.13	2-L3-4"x $4\frac{5}{16}$ "	293.0			
4-7	16.95	15.78	32.73	18.13	2-L3-4"x $4\frac{5}{16}$ "	293.0			
Tie 7-7'				27.50	2-L3-2"x $2\frac{1}{2}$ "x $\frac{1}{4}$ "	123.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
5400	379.0	6.67	2.2			5900.0	7.84		

SPAN 120'-0" RISE 27'-6" DISTANCE, CENTER TO CENTER 15'-0"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	17.65	47.90	65.55	16.40	1-PL-10"x $\frac{1}{2}$ "	279.0			
					1-PL-10"x $\frac{7}{16}$ "	244.0			
					2-L-4"x3"x $\frac{7}{16}$ "	321.0			
C-2	17.65	45.60	63.25	16.40	"D ₀ "	279.0			
					"	244.0			
					"	321.0			
D-5	17.65	43.28	60.93	16.40	"D ₀ "	279.0			
					"	244.0			
					"	321.0			
E-6	17.65	41.00	58.65	16.40	"D ₀ "	279.0			
					"	244.0			
					"	321.0	No Change		
X-1	21.13	43.65	64.78	18.13	2-L-6"x6"x $\frac{7}{16}$ "	620.0			
X-3	16.88	37.40	54.28	18.13	2-L-6"x6"x $\frac{7}{16}$ "	620.0			
X-7	8.47	24.78	33.25	23.75	2-L-4"x4"x $\frac{5}{16}$ "	392.0			
1-2	3.50	5.18	8.68	7.48	1-L-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	64.0			
2-3	4.27	6.31	10.58	18.13	1-L-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	154.0			
3-4	7.00	10.36	17.36	14.96	2-L-4"x3"x $\frac{1}{2}$ "	332.0			
4-5	4.27	6.31	10.58	18.13	1-L-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	154.0			
5-6	3.50	5.18	8.68	7.48	1-L-3"x2 $\frac{1}{2}$ "x $\frac{1}{2}$ "	64.0			
6-7	8.44	12.56	21.00	18.13	2-L-4"x4"x $\frac{3}{8}$ "	358.0			
4-7	19.75	18.87	38.62	18.13	2-L-4"x4"x $\frac{3}{8}$ "	358.0			
Tie 7-7'				27.50	2-L-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	123.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
648.0	451.0	6.89	1.24			6815.0	7.55		

1. The first part of the book is a general introduction to the subject of the history of the world.

THE HISTORY OF THE WORLD

The second part of the book is a detailed account of the history of the world from the beginning of time to the present day.

The third part of the book is a detailed account of the history of the world from the beginning of time to the present day.

The fourth part of the book is a detailed account of the history of the world from the beginning of time to the present day.

The fifth part of the book is a detailed account of the history of the world from the beginning of time to the present day.

The sixth part of the book is a detailed account of the history of the world from the beginning of time to the present day.

SPAN	120'-0"	RISE	27'-6"	DISTANCE, CENTER TO CENTER	17'-6"
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MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B 1	2058	56.85	7743	1640	1-P1-10"x $\frac{1}{2}$ "	279.0			
					1-P1-12"x $\frac{7}{16}$ "	293.0			
					2-L3-4"x3"x $\frac{7}{16}$ "	321.0			
C-2	2058	54.10	7468	1640	"D _o "	279.0			
					"	293.0			
					"	321.0			
D-5	2058	51.35	7193	1640	"D _o "	279.0			
					"	293.0			
					"	321.0			
E-6	2058	48.60	6918	1640	"D _o "	279.0			
					"	293.0			
					"	321.0	No Change		
X-1	2465	51.75	7642	1813	2-L3-6"x6"x $\frac{1}{2}$ "	707.0			
X-3	1867	44.35	6302	1813	2-L3-6"x6"x $\frac{1}{2}$ "	707.0			
X-7	989	2940	3929	2375	2-L3-4"x4"x $\frac{3}{8}$ "	473.0			
I-2	376	615	991	748	2-L3-2"x2"x $\frac{5}{16}$ "	67.0			
2-3	458	748	1206	1813	1-L-3"x2"x $\frac{1}{2}$ "	154.0			
3-4	752	1229	1981	1496	2-L3-4"x3"x $\frac{9}{16}$ "	371.0			
4-5	458	748	1206	1813	1-L-3"x2"x $\frac{1}{2}$ "	154.0			
5-6	376	615	991	748	2-L3-2"x2"x $\frac{5}{16}$ "	67.0			
6-7	985	1490	2475	1813	2-L3-4"x4"x $\frac{7}{16}$ "	408.0			
4-7	2301	2240	4541	1813	2-L3-4"x4"x $\frac{7}{16}$ "	408.0			
Tie T-71				2750	2-L3-2"x2"x $\frac{1}{4}$ "	123.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft H. P.		
7560	5090	7.10		0.25		7478.0	7.12		

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SPAN 120'-0" RISE 27'-6" DISTANCE, CENTER TO CENTER 22'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECTED MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	2645	7405	100.50	1640	1-P1-10"x $\frac{1}{2}$ "	2790			
					1-P1-12"x $\frac{1}{16}$ "	460.0			
					2-L3-4"x3"x $\frac{1}{2}$ "	364.0			
C-2	2645	7045	97.90	1640	'D ₀ '	2790			
					"	460.0			
					"	3640			
D-5	2645	66.95	93.40	1640	'D ₀ '	2790			
					"	4600			
					"	3640			
E-6	2645	63.35	89.80	1640	'D ₀ '	2790			
					"	4600			
					"	3640	No Change		
X-1	3170	6745	99.15	1813	2-L3-8"x8"x $\frac{1}{2}$ "	9460			
X-3	2530	5770	83.00	1813	2-L3-8"x8"x $\frac{1}{2}$ "	9460			
X-7	1260	3830	50.90	23.75	2-L3-4"x4"x $\frac{1}{2}$ "	612.0			
1-2	525	8.05	13.30	748	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	67.0			
2-3	641	9.75	16.16	1813	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	192.0			
3-4	1050	16.10	26.60	14.96	2-L3-4"x3"x $\frac{3}{4}$ "	478.0			
4-5	641	9.75	16.16	1813	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{3}{8}$ "	192.0			
5-6	525	8.05	13.30	748	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{5}{16}$ "	67.0			
6-7	1265	19.40	32.05	1813	2-L3-4"x4"x $\frac{5}{8}$ "	568.0			
4-7	2961	29.15	58.76	1813	2-L3-4"x4"x $\frac{5}{8}$ "	568.0			
Tie 7-7'				2750	2-L3-2 $\frac{1}{2}$ "x2"x $\frac{1}{4}$ "	123.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
9720	710.0	7.80		0.45		9626.0	7.09		



SPAN 120'-0" RISE 27'-6" DISTANCE, CENTER TO CENTER 25'-0"

MEMBER	WIND LOAD WIND SIDE	SNOW AND DEAD STRESS	MAXIMUM STRESS	CENTER DEAD STRESS LENGTH	ASSUMED SECTION	CENTER WEIGHT	CORRECTED MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B 1	2942	82.50	111.92	1640	1-P1-12"x $\frac{1}{2}$ "	335.0			
					1-P1-12"x $\frac{5}{8}$ "	418.0			
					2-L3-4x3x $\frac{5}{8}$ "	446.0			
C 2	2942	78.55	107.97	1640	"D ₀ "	335.0			
					"	418.0			
					"	446.0			
D 3	2942	74.55	103.97	1640	"D ₀ "	335.0			
					"	418.0			
					"	446.0			
E 6	2942	70.60	100.02	1640	"D ₀ "	335.0			
					"	418.0			
					"	446.0			
X 1	3528	75.15	110.43	1813	2-L3-8x8x $\frac{9}{16}$ "	1069.0		No Change	
X 3	2815	64.40	92.55	1813	2-L3-8x8x $\frac{9}{16}$ "	1069.0			
X 7	1413	42.65	56.78	2375	2-L3-4x4x $\frac{9}{16}$ "	683.0			
1-2	584	89.2	147.6	748	2-L3-2 $\frac{1}{2}$ x2x $\frac{3}{8}$ "	79.0			
2-3	713	108.6	179.9	1806	2-L3-2 $\frac{1}{2}$ x2x $\frac{3}{8}$ "	192.0			
3-4	1168	178.4	29.52	1496	2-L3-4x3x $\frac{1}{8}$ "	511.0			
4-5	713	108.6	179.9	1806	2-L3-2 $\frac{1}{2}$ x2x $\frac{3}{8}$ "	192.0			
5-6	584	89.2	147.6	748	2-L3-2 $\frac{1}{2}$ x2x $\frac{3}{8}$ "	79.0			
6-7	1408	216.3	357.1	1813	2-L3-4x4x $\frac{11}{16}$ "	618.0			
4 7	32.95	32.53	65.50	1813	2-L3-4x4x $\frac{11}{16}$ "	618.0			
Tie T-7				27.50	2-L3-2 $\frac{1}{2}$ x2x $\frac{3}{4}$ "	123.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. F.		
10800	862.0	8.5		0.46		10581.0	7.05		

SPAN 120'-0" RISE 30'-0" DISTANCE, CENTER TO CENTER 10'-0"

MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	11.38	29.87	41.25	16.77	1-PL-10X $\frac{1}{2}$ "	285.0			
					1-PL-10X $\frac{1}{4}$ "	142.5			
					2-LS-4X3X $\frac{3}{8}$ "	285.0			
C-2	11.38	28.20	39.58	16.77	"Do."	285.0			
					"	142.5			
					"	285.0			
D-5	11.38	26.50	37.88	16.77	"Do."	285.0			
					"	142.5			
					"	285.0			
E-6	11.38	24.80	36.18	16.77	"Do."	285.0			
					"	142.5			
					"	285.0			
X-1	13.80	26.72	40.52	18.75	2-LS, 5X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	390.0			
X-3	11.25	23.00	34.50	18.75	2-LS, 5X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	390.0			
X-7	5.60	15.40	21.00	22.50	2-LS, 5X3 $\frac{1}{2}$ X $\frac{5}{16}$ "	392.0			
1-2	2.50	3.40	5.90	8.38	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	71.2			
2-3	2.85	3.78	6.63	18.75	1-L, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	50.6			
3-4	5.00	6.80	11.83	16.75	2-LS, 4X3X $\frac{1}{2}$ "	373.0			
4-5	2.85	3.78	6.63	18.75	1-L, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	50.6			
5-6	2.50	3.40	5.90	8.38	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	71.2			
6-7	5.65	7.66	13.31	18.75	2-LS, 2 $\frac{1}{2}$ X2X $\frac{7}{16}$ "	229.0			
4-7	8.50	11.45	19.95	18.75	2-LS, 2 $\frac{1}{2}$ X2X $\frac{7}{16}$ "	229.0			
Tie 7-7'				30.00	2-LS, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	111.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
4320	239	5.3	.7			4538	7.58*		



SPAN 120'-0"

64

SPAN 120'-0"

65

SPAN 120'-0" RISE 30'-0" DISTANCE, CENTER TO CENTER 17'-6"

MEMBER	WIND LOAD STRESS WIND SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	1990	53.10	73.00	16.77	1-P1-10X $\frac{1}{2}$ "	2850			
					1-P1-10X $\frac{1}{2}$ "	2850			
					2-15-4X3X $\frac{1}{2}$ "	3720			
C-2	1990	50.10	70.00	16.77	"D ₀ "	2850			
					"	2850			
					"	3720			
D-5	1990	47.00	66.90	16.77	"D ₀ "	2850			
					"	2850			
					"	3720	No change		
E-6	1990	44.20	64.10	16.77	"D ₀ "	2850			
					"	2850			
					"	3720			
X-1	2420	47.50	71.70	18.75	2-15, 5X3 $\frac{1}{2}$ X $\frac{1}{16}$ "	6860			
X-3	1970	40.80	60.50	18.75	2-15, 5X3 $\frac{1}{2}$ X $\frac{1}{16}$ "	6860			
X-7	9.84	27.40	37.24	22.50	2-15, 5X3 $\frac{1}{2}$ X $\frac{3}{8}$ "	4690			
1-2	4.39	6.05	10.44	8.38	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	1140			
2-3	5.00	6.72	11.72	18.75	1-L, 2 $\frac{1}{2}$ X2X $\frac{7}{16}$ "	1140			
3-4	8.79	12.10	20.88	16.75	2-15, 4X3X $\frac{3}{4}$ "	5360			
4-5	5.00	6.72	11.72	18.75	1-L, 2 $\frac{1}{2}$ X2X $\frac{7}{16}$ "	1140			
5-6	4.39	6.05	10.44	8.38	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{5}{8}$ "	1140			
6-7	9.92	13.60	23.52	18.75	2-15, 3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	3560			
4-7	14.90	20.50	35.40	18.75	2-15, 3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	3560			
Tie 7-7'				30.00	2-15, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	1110			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D, L, Stress	Per Cent. Decrease D, L, Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
7560 [#]	479	6.00	.60			7830	7.52 [#]		

SPAN 120'-0"

67

DISTANCE, CENTER TO CENTER 22'-6"

58

SPAN 120'-0" RISE 30'-0" DISTANCE, CENTER TO CENTER 25'-0"

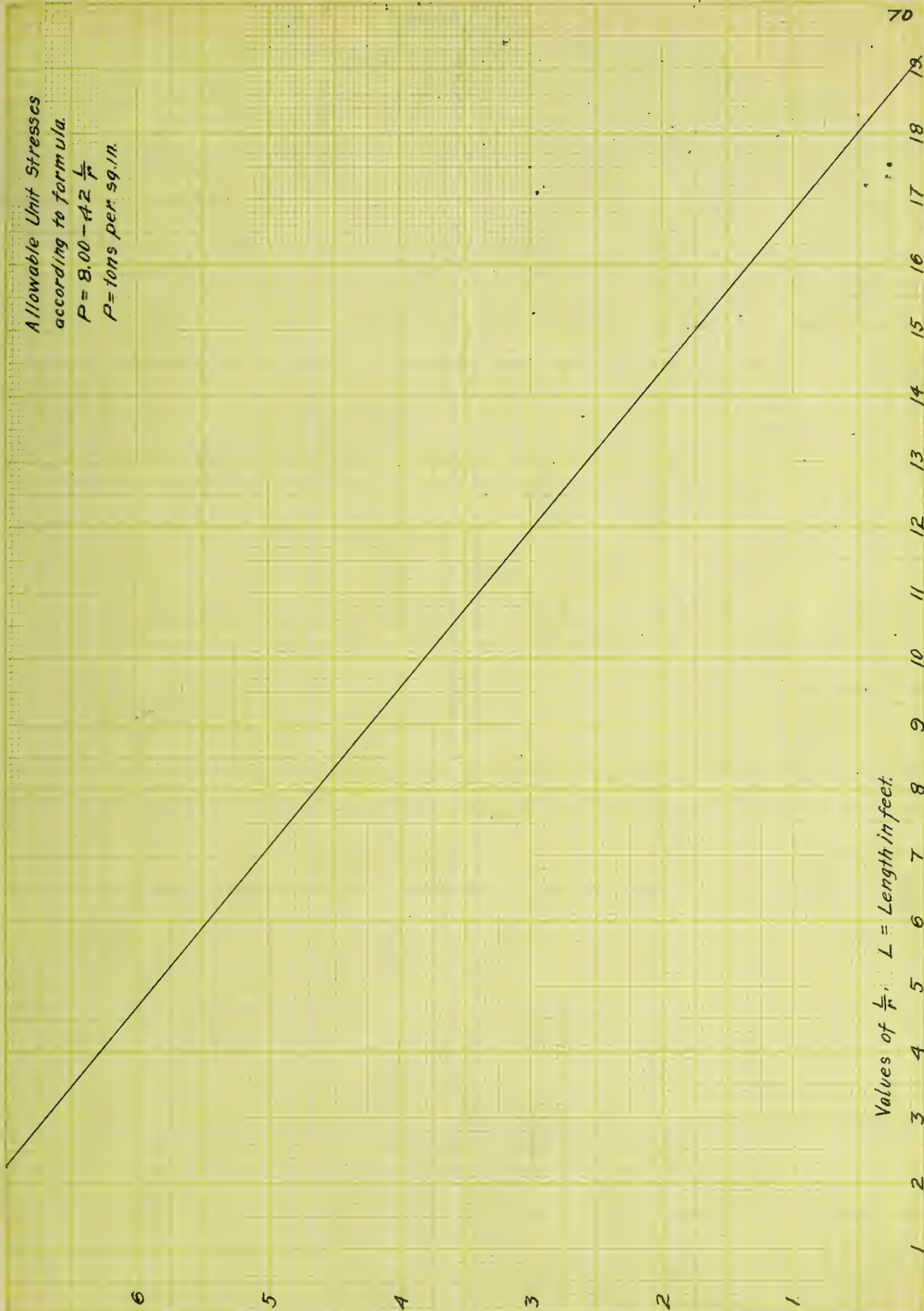
MEMBER	WIND LOAD STRESS WIN'D SIDE	SNOW AND DEAD-LOAD STRESS	MAXIMUM STRESS	CENTER LINE LENGTH	ASSUMED SECTION	CENTER LINE WEIGHT	CORRECT'D MAXIMUM STRESS	CORRECTED SECTION	CORRECTED CENTER LINE WEIGHT
B-1	28.50	77.50	106.00	16.77	1-PL-10X1 $\frac{1}{2}$ "	285.0			
					1-PL-12X $\frac{5}{8}$ "	428.0			
					2-LS-4X3X $\frac{5}{8}$ "	456.0			
C-2	28.50	73.20	101.70	16.77	"Do"	285.0			
					"	428.0			
					"	456.0			
D-5	28.50	68.90	97.40	16.77	"Do"	285.0			
					"	428.0			
					"	456.0			
E-6	28.50	64.50	93.00	16.77	"Do"	285.0			
					"	428.0			
					"	456.0			
X-1	34.60	69.50	104.10	18.75	2-LS, 6X4X $\frac{13}{16}$ "	951.0			
X-3	28.30	59.70	88.00	18.75	2-LS, 6X4X $\frac{13}{16}$ "	951.0			
X-7	14.09	40.00	54.08	22.50	2-LS, 6X4X $\frac{7}{8}$ "	645.0			
1-2	6.29	8.84	15.13	8.38	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{7}{8}$ "	153.0			
2-3	7.16	9.82	16.98	18.75	1-L, 3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	178.0			
3-4	12.58	17.70	30.28	16.75	2-LS, 5X3X $\frac{13}{16}$ "	666.0			
4-5	7.16	9.82	16.98	18.75	1-L, 3X2 $\frac{1}{2}$ X $\frac{9}{16}$ "	178.0			
5-6	6.29	8.84	15.13	8.38	1-L, 3 $\frac{1}{2}$ X3 $\frac{1}{2}$ X $\frac{7}{8}$ "	153.0			
6-7	14.20	19.90	34.10	18.75	2-LS, 3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{3}{4}$ "	502.0			
4-7	21.40	29.75	51.15	18.75	2-LS, 3 $\frac{1}{2}$ X2 $\frac{1}{2}$ X $\frac{3}{4}$ "	502.0			
Tie 7'				30.00	2-LS, 2 $\frac{1}{2}$ X2X $\frac{1}{4}$ "	111.0			
Assumed Weight of Truss	Weight of Details	Details % of Center Line Weights	Per Cent. Increase D. L. Stress	Per Cent. Decrease D. L. Stress	Corrected Weight of Details	Final Weight of Truss	Weight per Sq. Ft. H. P.		
10800	713	6.9		.61		10300 [#]	6.87		

Allowable Unit Stresses

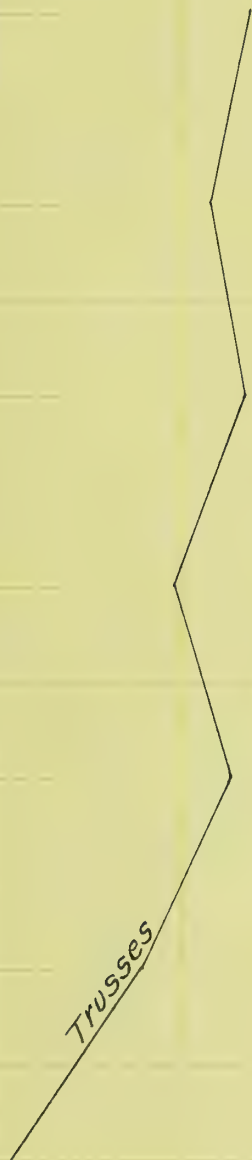
according to formula.

$$P = 8.00 - A2 \frac{L}{P}$$

P = tons per sq.in.



12'-6" Rise
Weight per sq ft
Hor. proj. of
Trusses, rafters & purlins



Trusses by Formula



Rafters

Purlins

10'-0" 12'-6" 15'-0" 17'-6" 20'-0" 22'-6" 25'-0" Dist Center to Center.

15'-0" Rise
Weight per sq. ft.
Hor. proj. of
Trusses, Rafters & Purlins

10
9
8
7
6
5
4
3
2
1

Trusses



Trusses by Formula



Rafters

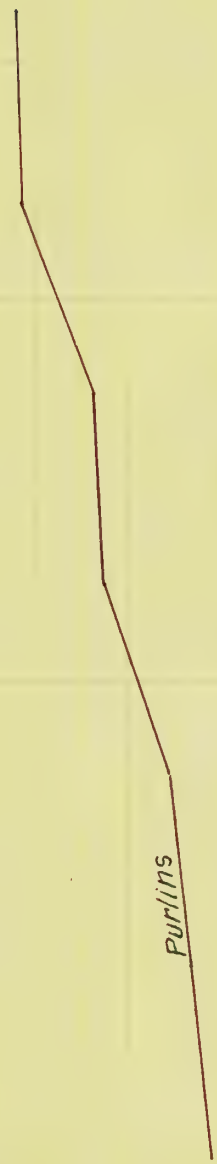


Purlins



10'-0" 12'-6" 15'-0" 17'-6" 20'-0" 22'-6" 25'-0"

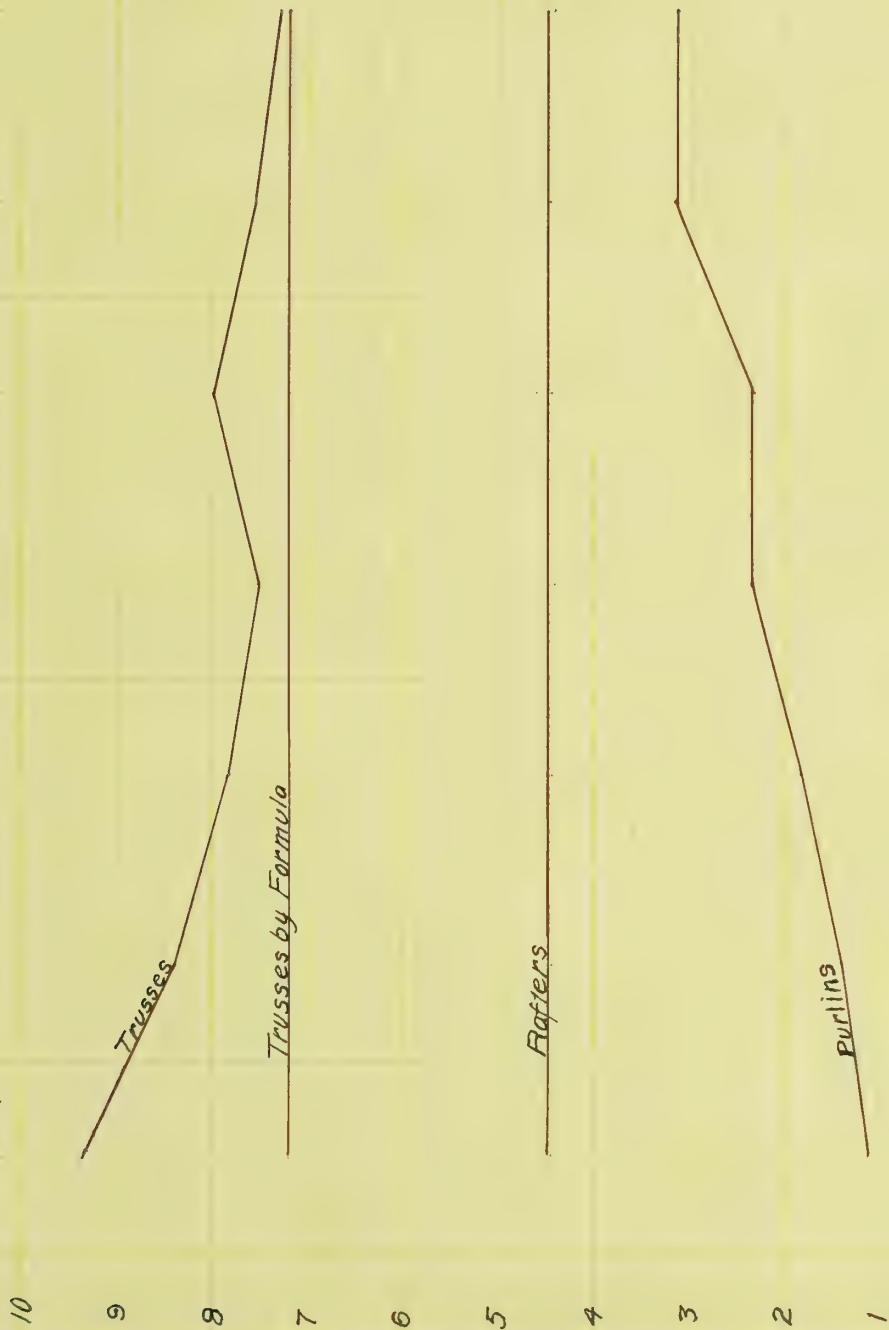
17'-6" Rise
 Weigh per sq. ft.
 Hor. proj. of
 Trusses, rafters, & purlins.



8
 7
 6
 5
 4
 3
 2
 1

10'-0" 12'-6" 15'-0" 17'-6" 20'-0" 22'-6" 25'-0" Dist. Center to Center.

20'-0" Rise
Weight per sq. ft.
Hor. proj. of
Trusses, rafters + purlins



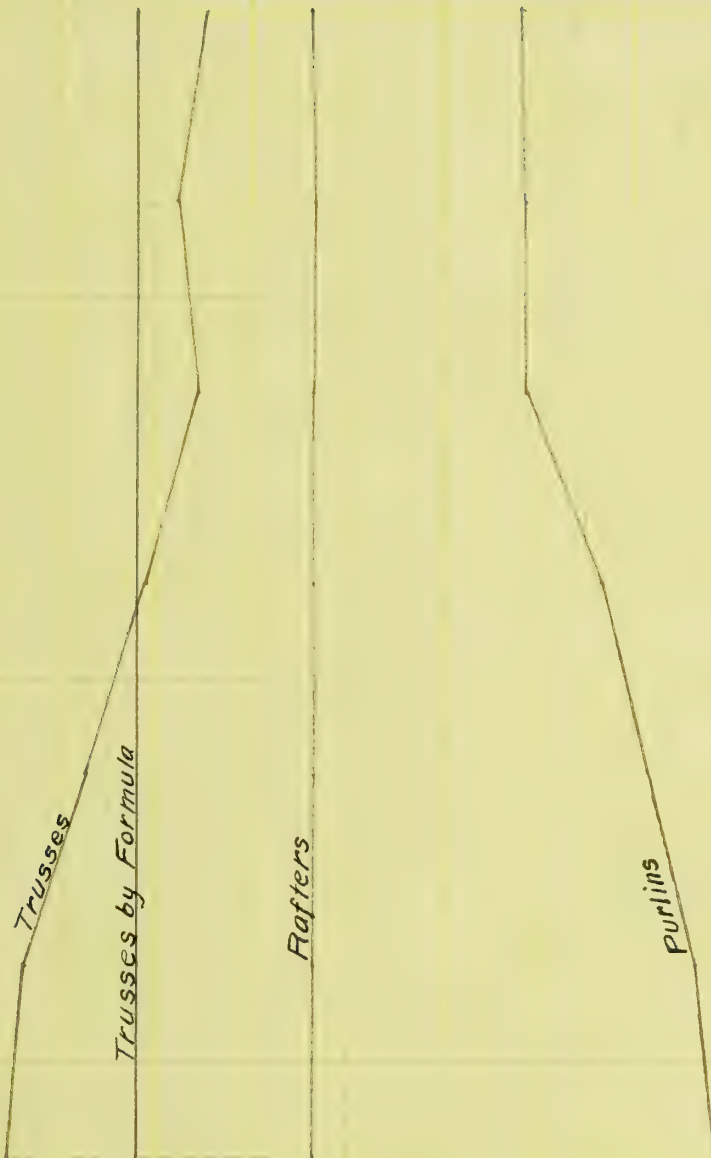
22'-6" Rise
 Weight per sq. ft.
 Hor. proj. of
 Trusses, rafters & purlins.



8
 7
 6
 5
 4
 3
 2
 1

10'-0" 12'-6" 15'-0" 17'-6" 20'-0" 22'-6" 25'-0" Dist. Center to Center.

25'-0" Rise
Weight per sq. ft.
Hor. proj. of
Trusses, rafters & purlins



27'-6" Rise
Weight per sq. ft.
Hor. proj. of
Truss, rafters + purlins

8

Trusses

7

Trusses by Formula

6

Rafters

5

4

3

2

1

Purlins

10'-0"

12'-6"

15'-0"

17'-6"

20'-0"

22'-6"

25'-0"

Dist. Center to Center

30'-0" Rise
Weight per sq. ft.
Hor. proj. of
Truss, rafters & purlins.



Weight of Trusses
according to Rise
per sq. ft. Hor. proj.



Weight of
Rafters per
sq. ft. Hor. proj.

8

7

6

5

4

3

2

1

Rise

30'-0"

27'-6"

25'-0"

22'-6"

20'-0"

17'-6"

15'-0"

12'-6"

10'-0"

12'-6"

15'-0"

17'-6"

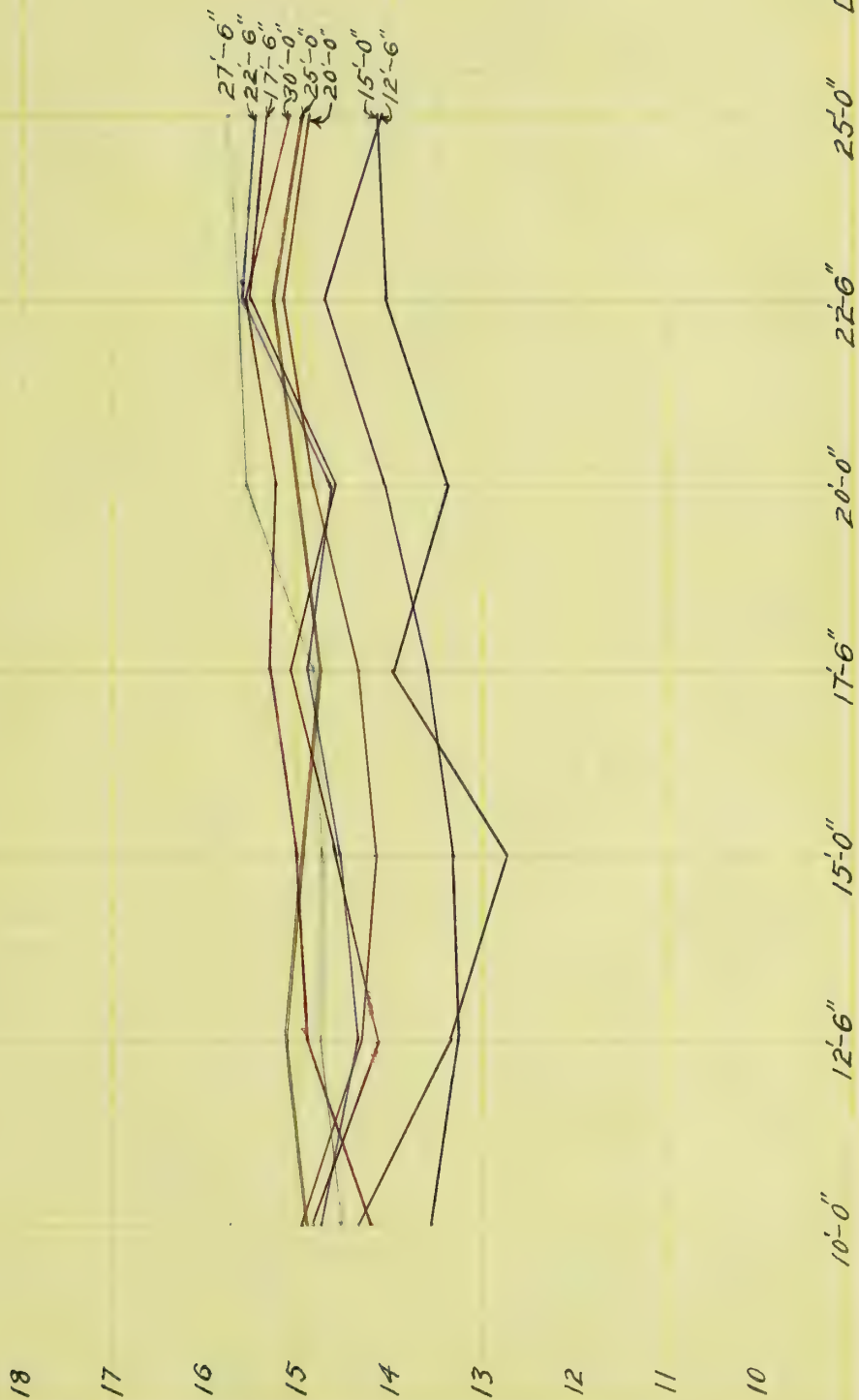
20'-0"

22'-6"

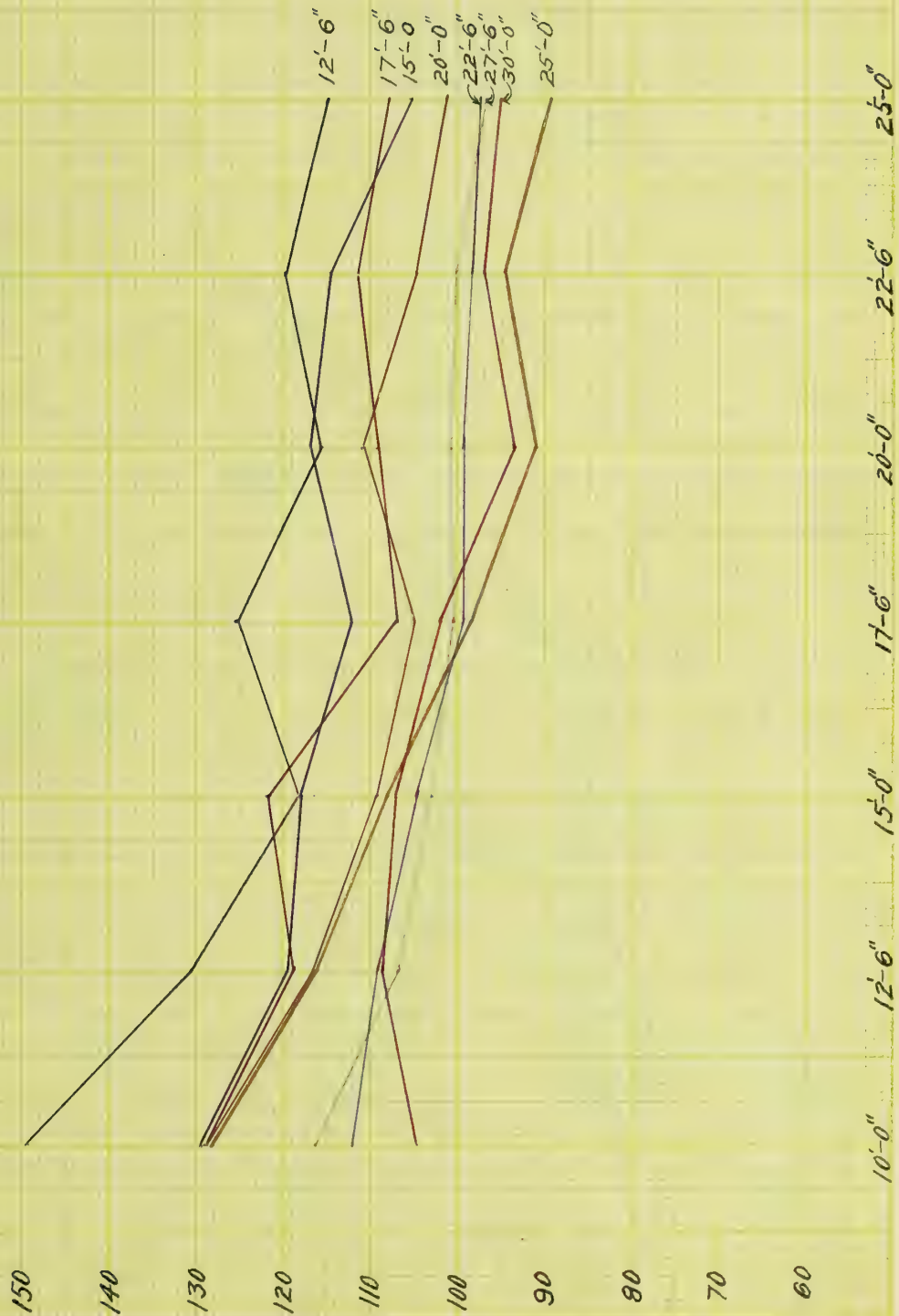
25'-0"

Dist. Center to Center.

Weights of
Truss+purlins+rafters
per sq. ft. hor. proj.



Percent of actual
weights of trusses
as compared with
weights by formula.



Conclusions.

The plates of curves immediately preceding this part of the work show the entire results of the investigation and it is always with reference to them that these conclusions are drawn. Some of the facts shown are self-evident truths, such as, that the increase of spacing, from center to center increases the size of purlins; that the weight per square foot of horizontal projection for the rafters increase with the rise, but do not increase with the distance from center to center of the trusses.

The weight of the rafters per square foot of horizontal projection was found to vary from 2.65 lbs. to 5.50 lbs. for $12\frac{1}{2}$ ft and 30 ft rise, respectively. The variation is considerable from the $12\frac{1}{2}$ ft. to the $22\frac{1}{2}$ ft. rise, varying from 2.6 lbs. to 5.25 lbs. Above this there is very little difference, the variation from the $22\frac{1}{2}$ ft to the 30 ft. being 5.25 lbs. to 5.50 lbs. The weight of the purlins per square foot of horizontal projection was found to

increase uniformly, that is the curves for all rises up to 25 ft. being nearly the same, these curves increasing slightly with the rise up to the 25 ft. rise, where the increase is very much more marked.

This increase with the rise is due to the increase of the wind pressure normal to the roof. The weights for the $12\frac{1}{2}$ ft. rise vary from 0.90 lbs. to 3.10 lbs. for the 10 ft. and 25 ft. spacings center to center respectively; and for the 30 ft. rise varies from 1.15 lbs. to 3.75 lbs. for the same spacings as before.

The weight of the truss per square foot of horizontal projection decreases as the distances from center to center of trusses increases, but considered as a whole this decrease shows considerable irregularity, varying from 1.00 lbs. in the case of the $27\frac{1}{2}$ ft. rise to 2.50 lbs. for the $12\frac{1}{2}$ ft. rise.

This would show that, so far as the trusses alone, the most economical spacing would be 25 ft. between centers.

Other things must be included, however, in a comparison for economy, such as the total weight of the steel work,

which includes the weight of the trusses, purlins and rafters. Taking all these into consideration it is found that curves slightly increase, but there is much irregularity, different rises showing different economical spacings:-

The $12\frac{1}{2}$ ft rise shows the economical spacing as 15 ft.

"	15	"	"	"	"	"	"	"	"	$12\frac{1}{2}$ "
"	$17\frac{1}{2}$	"	"	"	"	"	"	"	"	$12\frac{1}{2}$ "
"	20	"	"	"	"	"	"	"	"	13"
"	$22\frac{1}{2}$	"	"	"	"	"	"	"	"	$12\frac{1}{2}$ "
"	25	"	"	"	"	"	"	"	"	$17\frac{1}{2}$ "
"	$27\frac{1}{2}$	"	"	"	"	"	"	"	"	10"
"	30	"	"	"	"	"	"	"	"	10"

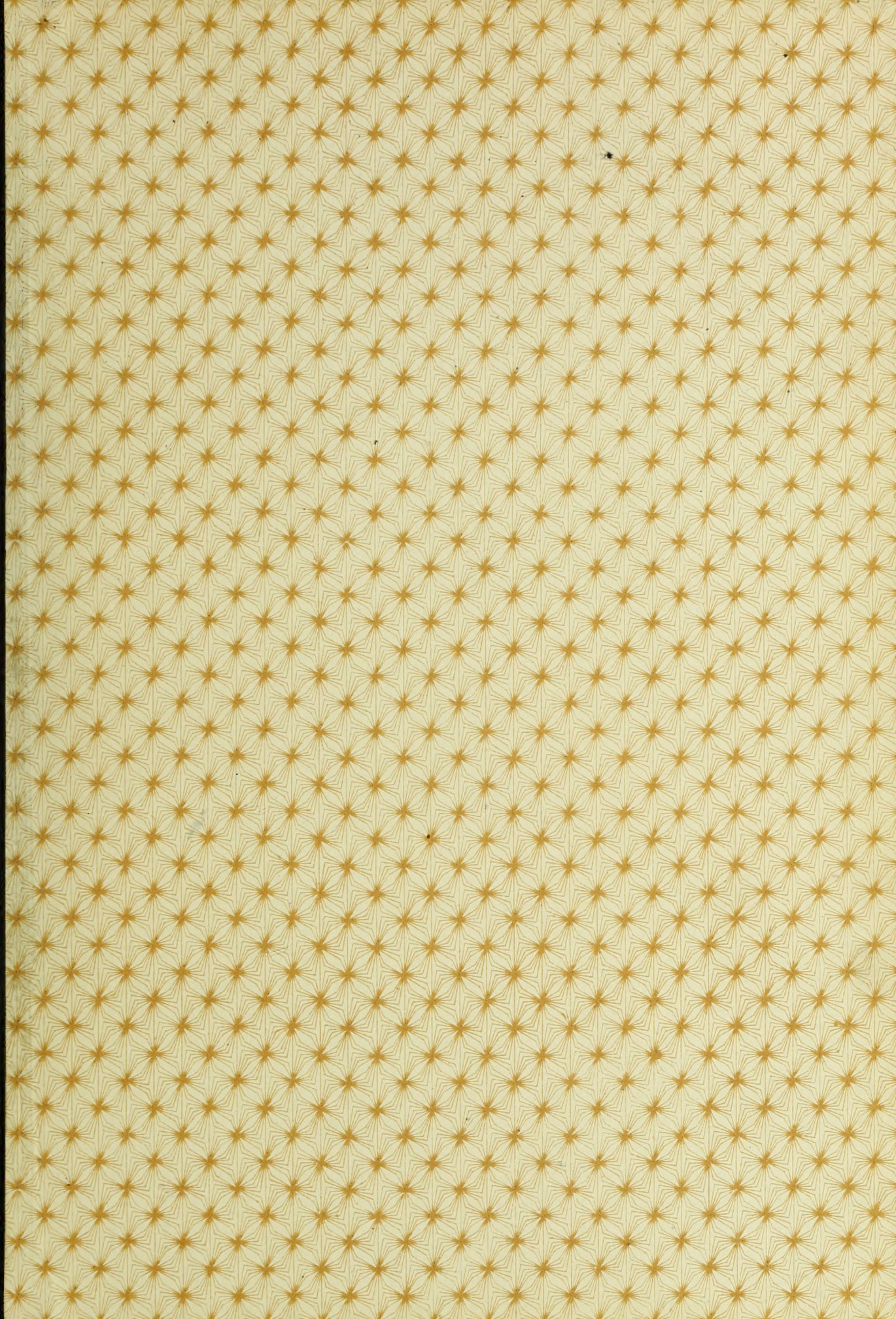
It also appears from a study of the curves that the rise of 25 ft., or $\frac{1}{5}$ pitch, is the most economical for the weight of the truss alone; but taking into consideration the weights of the purlins and rafters the $12\frac{1}{2}$ ft. rise or $\frac{1}{10}$ span, is found to be the most economical.

Although these curves are not smooth and regular, yet it is readily apparent that the average curves for each rise would be approximately parallel to the average curves for the other rises. When

we consider the variations in weight per square foot of horizontal projection for each rise with the changes of spacing from 10 ft. to 25 ft., it is found that the maximum difference is 1.60 lbs. and the average difference is 1.14 lbs. We must come to the conclusion that although the curves on the whole do not appear as averages, yet we may consider them as such, because of the irregular increase in the sizes and weights of the sections used. The curves further show that the general formula for the weights of trusses deduced by Mr. Ricker gives results too low for rises less than 20 ft., but above these there was very little difference between the weights calculated by formula, and the actual weights of the trusses. The most economical truss, the $12\frac{1}{2}$ ft. rise placed 15 ft. center to center, shows an increase of about 20% over the weight as calculated by the formula. An inspection of the curves shows that a factor, which takes into account the spacing of the trusses, should be added to the formula used.

An attempt was made to work such a factor, but owing to the insufficient data at hand it is impossible to obtain a factor that would take into consideration the spacing, center to center, for all spans. The factor to be added must take into consideration the fact, that the weight of the trusses, per square foot of horizontal projection of the roof, decreases as the spacing, center to center of the trusses increases and that the ratio of this decrease is different for different spans.





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